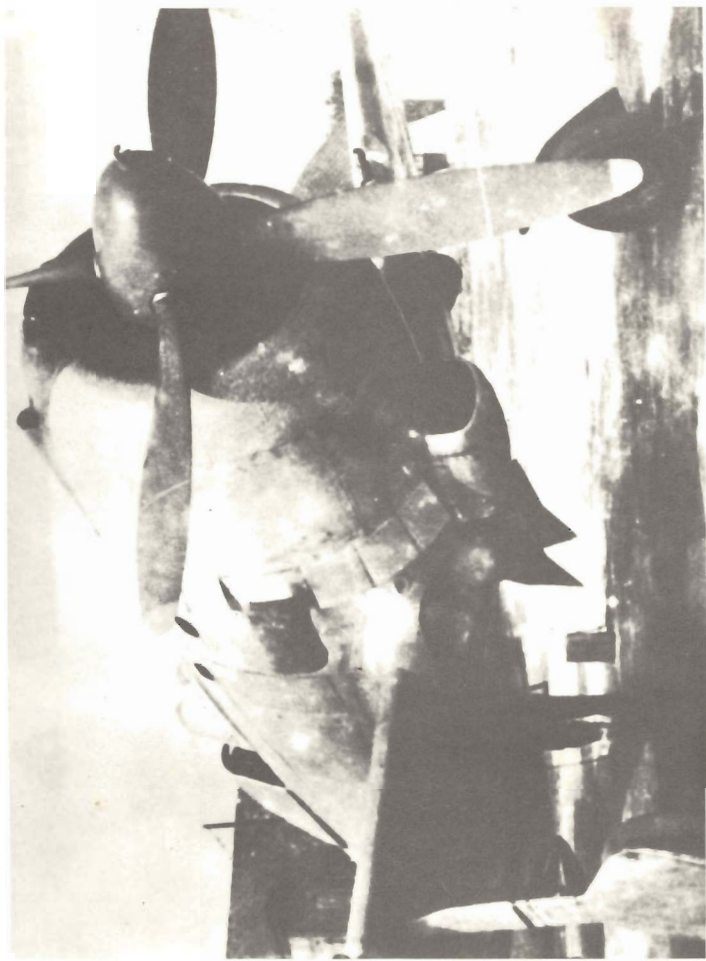


NAKAJIMA Ki.84a/b HAYATE

IN JAPANESE ARMY AIR FORCE SERVICE





Prototype Ki-8401 was completed in March 1943, and flown in April. (M. Toda via Buesche)



Ki.84a, 29th Air Combat Regiment, 1st Company, Taichu, Formosa, summer 1945. Standard Green/Grey camouflage with white Company insignia.

NAKAJIMA Ki.84a/b HAYATE IN JAPANESE ARMY AIR FORCE SERVICE

Compiled and written by
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Gothscans Ltd

ACKNOWLEDGEMENTS

Last of the Nakajima line of single-seat fighters, the Hurricane was a match for all Allied fighters in the Far East with the exception of the P-51 and Griffon Spitfires. With the publication of this book the complete line of Nakajima fighters is covered in the AIRCAM series. Thanks are due to all who assisted with material and information whose names are listed below in alphabetical order: Hideya Ando, Hal Andrews, Holmes G. Anderson, Koku Asahi, Peter M. Bowers, A. Ishikawa, Koku Fan, Koku Shonen, David C. Lucabaugh, Maru, Robert C. Mikesch, Nakajima Hikoki, N. Saito, Sekai no Kokuki, Hiko Shonen, Donald W. Thorpe, M. Toda, USAF, US NAVY.



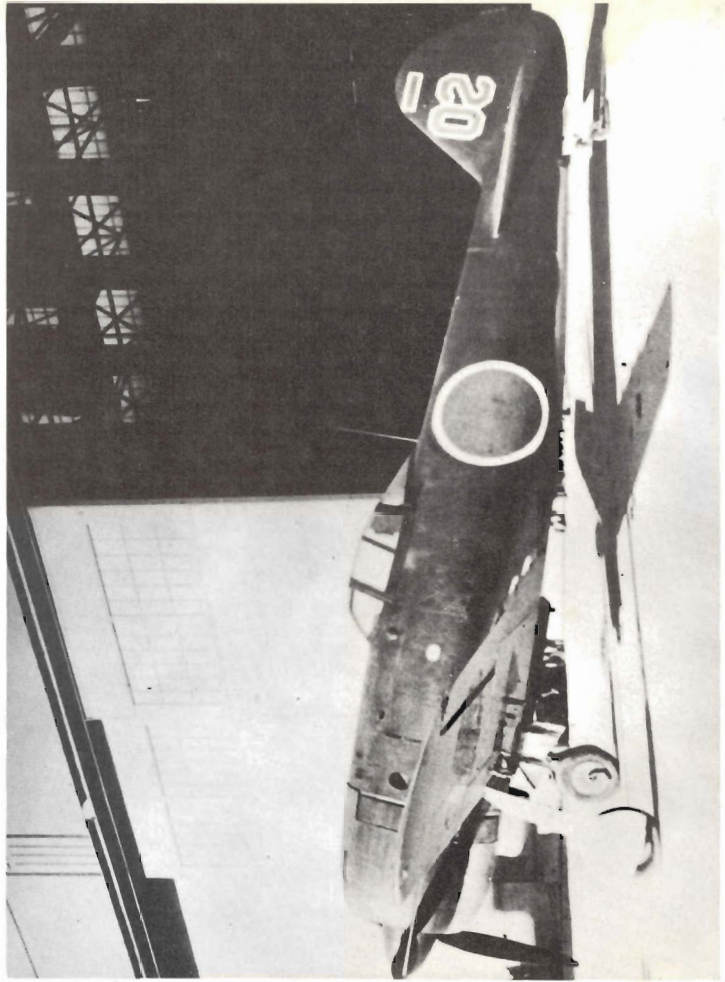
Ki.84a, 50th Air Combat Regiment, 3rd Company, Formosa-Japanese Home Islands, spring 1945. Standard Green/Grey camouflage with white Company insignia.

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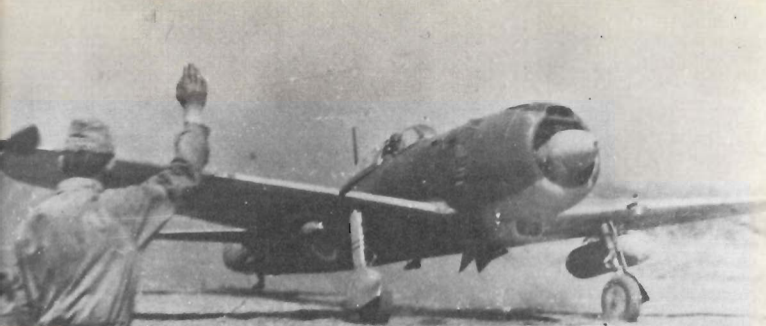
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Prototype Ki.402 was completed in June 1943 and entered service testing programme at Fussa AFB in August. (M. Toda via Bueschel)



Action over Luzon. A Model 1A Hayate takes off with a bomb on its right wing and a drop tank on the left. (Hideya Ando via Bueschel)

NAKAJIMA Ki.84 HAYATE

As the American transport vessels and their escorts headed north toward Luzon from Panay Island in the centre of the Philippines, they were covered by a protective screen of carrier-based F4U Corsairs. USAAF land-based P-38 Lightnings were also on hand, ranging over the Mindoro Straits from their bases on Leyte. The lookouts on board ship began to relax. The day was coming to an end as the sun sank lower toward the sea to the west. The date was 5 January 1945, and the possibility of attack from the air was negligible as the Japanese air forces in the Philippines had been all but destroyed. One month earlier, on 7 December, the Americans had blasted a reported 56 Japanese planes out of the skies over Leyte for the loss of a single P-38 Lightning. Since that date Japanese attacks from the air had been sporadic, with suicide attacks largely replacing conventional raids.

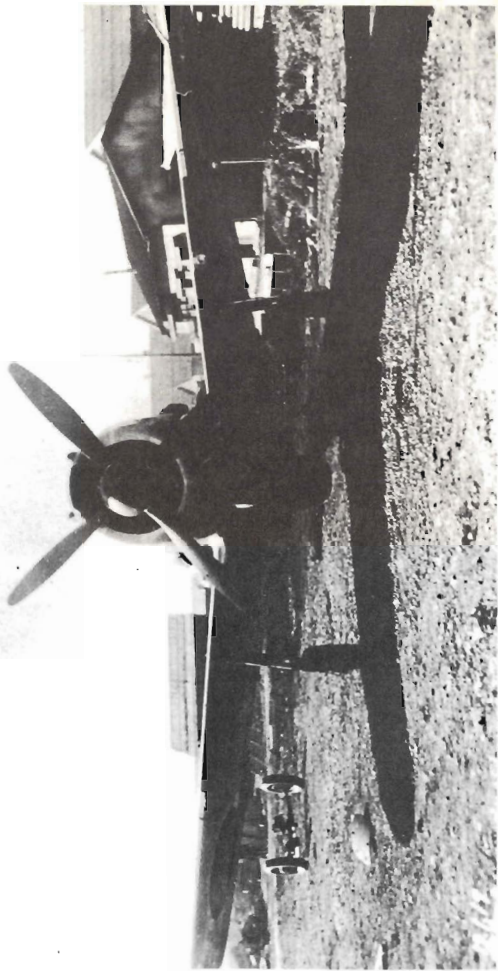
Suddenly, out of the north, five bomb-laden Japanese fighters appeared at an altitude of about 6,000 feet to begin their dive and skip-bombing runs on the transport ships. With over a hundred vessels in the convoy, the waters were filled with targets of opportunity. Just as quickly, the Corsairs closed in on the fighters as a massive screen of anti-aircraft fire filled the sky with bursts of slashing shrapnel. Coming up from the south-east, some 32 American Army P-38's began to climb to intercept the intruders. Everything was happening at once!

Moving themselves into a tight attack formation, the Japanese pilots closed their cockpit canopies, set their tabs full down, and dove into the wall of flak. Cutting off the defending American fighters with the brutal firing from below, they headed for the largest troop transports at the rear of the convoy. Lopsided from their single 550-pound bombs suspended from one wing, originally balanced by an auxiliary fuel tank

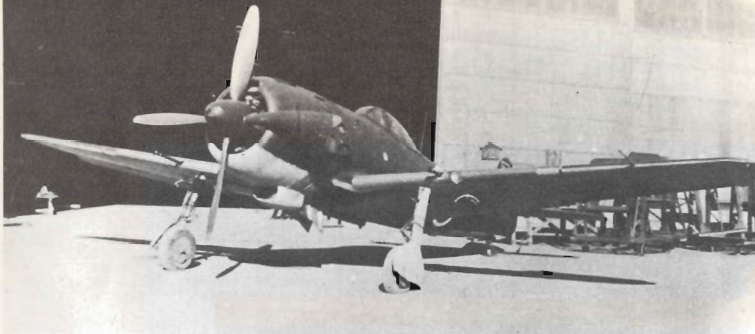
that had been dropped prior to the attack, the radial-powered Japanese planes came in at an angle of about 60 degrees. One burst into flames, then exploded and began spewing chunks of aircraft all over the sky. Another, by now hitting an indicated air speed of over 450 m.p.h., took a hit at the back of the canopy just as it dropped its bomb. Then the rest of the canopy came off, and the pilot was all but pulled out of the cockpit by air pressure. Miraculously, he levelled out the fighter barely above the water-line, and below the deck level of the transport he had just hit in the stern with a high-explosive bomb.

Spotted by those on deck as a "Frank", the newest Japanese Army fighter to see service in the Philippines, the topless attacker threaded its way through the crowded convoy at over 300 m.p.h. Just as it began to pull out of its predicament it took a hit on its hydraulic system. The right landing gear started to drop, braking the aircraft's speed like a sledge hammer, as the "Frank" disappeared into a cloud of black smoke. The convoy had just seen the new Japanese Army Air Force (JAAF) Ki.84 type 4 fighter in action, the latest of a long line of single-seat radial-engined fighters built by Nakajima. The result of a direct line of development, the Ki.84 was an advanced descendent of the Ki.27 97 Sen, Ki.43 Hayabusa and Ki.44 Shoki series of fighters produced by the same manufacturer. Known as the Hayate to the Japanese Army, in translation the Hurricane, the new fighter was easily the equal of its opponents, and superior in performance to many of the American and British fighters it met in combat.

Shaken by his experience, with his head in the open air and his right landing gear hanging one-third down, Captain Shiro Kono of the 1st Fighter Air Combat Regiment looked back at the holocaust below as his Hayate pulled away from the scene of battle. Bursting



Single central drop tank and single exhaust stacks identified the Ki 8401 and next two prototypes. (M. Toda via Bueschel)



Central drop tank fittings can be seen under fuselage. Wing racks are for bombs. (M. Toda via Bueschel)

out of the flak screen, he was attacked by four American F4U Corsair fighters that had been waiting overhead. Evading his foes to the best of his ability as the sky darkened, Kono was soon left alone as the Corsairs gave up in disgust. Heading home in the dark, with an hour of flying time ahead of him, the Army Air Force captain reflected on the overwhelming strength of the enemy and the hopelessness of Japan's position. Finally reaching his home base on Southern Luzon, Kono's Hayate was joined by only one other. Three 1st Regiment pilots had died in the battle, flying fighters as dive-bombers, unable to defend themselves. Four days later the American 6th Army began its massive Luzon landings to the north at Lingayen Gulf, and by the end of the month Philippines skies were under complete control of Allied airpower. Beaten and grounded, the Japanese air forces were either decimated or in retreat. The Philippines campaign was over and all that was left was the cleaning-up. The aircraft losses were to leave Japan almost defenceless, and the Japanese Army's best fighters had been thrown away by the hundreds as most of the Hayate production to date was lost in the campaign.

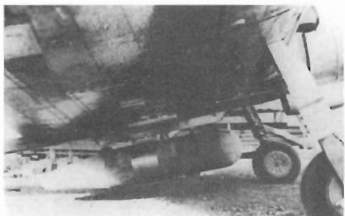
But the Hayate had made its mark. It would be met again in quantity over Okinawa, Japan, China and Manchoukuo. Nakajima's final fighter was ready for the final fight. It was soon in coming.

Beginning the end of the line

It is said that the moment any aircraft reaches production it is obsolete. By the time a fighter has been tested and toolled, and starts to come off the line to enter service, its designers have already gone well beyond it in their minds and are thinking about what they can do next to make an even better aircraft. With the Ki-43 Hayabusa just beginning to enter service as the Pacific War began, both the JAAF and Nakajima management began to consider the next generation fighter. The Army wanted an all-purpose penetration fighter that combined the handling characteristics of the nimble Ki-43 with the

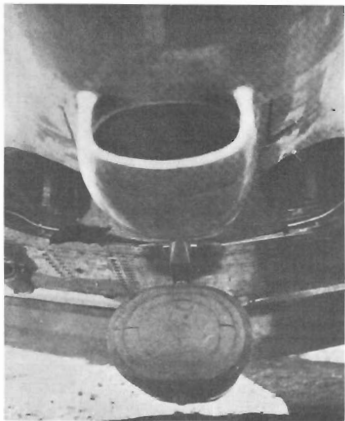
performance of the heavier Ki-44 Shoki that was also technologically simplified. It took 25,000 man hours to produce a Hayabusa, and even though it was smaller, the Shoki still required 24,000 man hours. No matter how the new war progressed, the Japanese Army knew that its fighter demand requirements would increase. One way to get more fighters was to cut the production time in half, if that was possible, in turn providing twice as many aircraft in the same time period utilizing existing manufacturing facilities. On 29 December 1941, exactly three weeks after Japan went to war with the ABD powers (American, British and Dutch), the JAAF gave Nakajima the specifications for the new fighter. One of the most exciting features of the new requirements was the specified use of the Nakajima Ha.45 engine, a new 2,000 h.p. radial that was just being developed by the firm. Tei Koyama, freed from the long-term demands of the Ki-44 Shoki (which was now on operational test and would enter mass production in a matter of months) became the chief project engineer. By April 1942 rough thoughts on a fighter that could be produced in an estimated 14,000 man hours were reviewed with the Army. On 27 May 1942 Nakajima received a prototype order from the JAAF for the Ki-84 Army Experimental Heavy Fighter, and work started.

Few World War II high-performance fighters were developed so fast. By March 1943, only ten months later, prototype Ki-8401 was finished, and in less than five weeks it made its first flight at Ojima Airfield in April. The Army Air Test Department at Fussa was under great pressure to evaluate the aircraft as rapidly as possible, for the tide of war had turned. Far to the south, in New Guinea, the JAAF 4th Air Army was feeling the pressure of the Allied air forces, losing hundreds of its aircraft without any major accomplishments. The Army was running out of fighters, and the new Ki-84 was desperately needed to counter the new Allied aircraft making their appearance. In June 1943 prototype Ki-8401 made an appearance at the Akeno Fighter Army Flying School, flown in by Fussa test pilot Major Iwabashi, where it dazzled



Above: Single drop tank was soon found to be inadequate for long-range offensive missions. (Sekai no Kokuki via Bueschel)

Below: Large oil cooler was characteristic of all later Ki.84 models. (Sekai no Kokuki via Bueschel)



Below: Wing racks were tested on pre-production models to develop universal racks to hold 30kg. to 250kg. bombs as well as fuel drop tanks. (Koku Fan)



instructors and students alike. Iwabashi explained that the new fighter was so simple to fly, that unskilled pilots with only 200 hours in the air could handle it. To prove it, Iwabashi made repeated demonstration flights, making landings in 400 metres and using up only two-thirds of the Akeno runway. It was a master public relations stroke, for the personnel at the JAAF's top fighter school could hardly wait for the new mount. With the Kawasaki Ki.61-I Hien just entering service, and the Ki.84 coming soon, morale throughout Army Air was boosted at a critical time.

June was also the month the second prototype, Ki.8402, was completed. Incorporating numerous changes based on experience with Ki.8401, it was flying in August. A third Ki.8403 prototype quickly followed. Looking much like bigger Hayabusas, the three prototypes had single large exhausts and centre-line fittings for a single drop tank or bomb. Hitting 624 km./hr. (388 m.p.h.) the new fighters were faster than their predecessors, but still below the hoped-for performance. But the production advantages were enormous. The switch to the Ki.84 at Nakajima's Ota plant production lines could be made so quickly and easily it would hardly be noticed. Koyama, by now a director of the company, had designed his aircraft to make use of the same jigs then being used to produce the Ki.43 Hayabusa. Another production development was the adoption of the *Kijunko Shuseiho* (standardized drilling collection) system, a method of drilling from patterns that eliminated hand measurements, thereby increasing accuracy while speeding up the work.

The bird leaves the nest

With testing of the first three prototypes proceeding, the Army ordered Nakajima to rush right into construction of a batch of improved models for service evaluation prior to production approval. Engineering improvements had been started as soon as Ki.8401 was in the air, and by August 1943 the first of the pre-production models had been completed. The exhaust system now had separate thrust-augmented stacks, and racks were added to each wing to allow the aircraft to carry two tanks or 250 kg. bombs, or one of each. Rushed over to Fussa in September 1943, the new model was flown in mock combat with its brother Ki.44 Shoki as well as one of the JAAF's proudest possessions, a German Focke-Wulf Fw.190 A/5 that had arrived in Japan earlier that summer. Test pilot Major Yasuhiko Kuroe, a former Shoki combat pilot now assigned to Fussa, rated the Nakajima Ki.84 higher than both competitive aircraft in manoeuvrability, but worriedly reported that the German fighter decidedly had the advantage in speed and dive tests.

Between August and March 1944 a total of 83 of the evaluation models were produced, with testing of various attributes starting as soon as examples were available. As the tests progressed, the airframes on the production line were modified based on experience, in effect working out production problems as the performance was enhanced. Step by step the fuselage underwent evolutionary changes as the tail configuration was being finalized to overcome a torque problem. By October 1943 a flight training company had been formed at Akeno to test the Ki.48's performance in an actual unit. Over the winter the

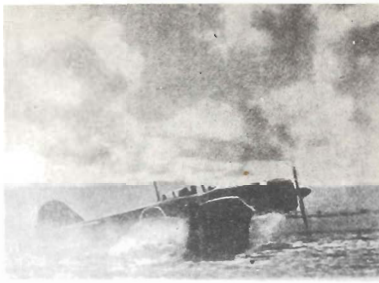
experimental group ironed out the organizational bugs faced with the new fighter. By March 1944, in accordance with JAAF practice, the training unit was disbanded, with most of the pilots being transferred to the newly-formed Fussa-based 22nd Fighter Air Combat Regiment, the first combat unit to receive the fighter. Under command of Major Iwashi, the 22nd Regiment started its unit training with pre-production models powered by the Ha.45/11. A second batch of evaluation models were started in the same month, with 42 being completed by June. In April, the Army authorized production as the Ki.84-1a Type 4 Fighter, Model 1A, and named it Hayate. With evaluation and Type 4 service models being produced on parallel lines, the availability of the fighter jumped as Hayabusa production ended. By June monthly production topped 100 aircraft, and by October the monthly rate was over 300.

Broad acceptance by the JAAF of the Hayate as the Hayabusa's replacement put the spotlight on the 22nd Regiment. With over 20 existing regiments scheduled for the Hayate, and half as many new Ki.84 regiments yet to be formed, the maintenance and performance of the fighter was of critical importance. Skilled crews kept the various pre-production and Ki.84-1a production models of Hayate in top shape as pilots and potential unit commanders rotated through the 22nd Regiment. The results were almost bugless, and the Hayate was on its way to war as almost the most perfect new fighter to enter JAAF service. This reliance on perfection, particularly the "tender-loving-care" given to the sophisticated Ha.45/11 engines, was later to cost the JAAF dearly, for the Hayate was being measured for combat under controlled conditions. In actual combat the results would prove to be much different.

By the middle of the summer the unit was ready to face the enemy, and 30 or so production Ki.84-1a Hayates of the 22nd Regiment were shipped over to Hankow, China, where they joined the Shoki-equipped 85th Regiment. Pitted against the USAAF Mustangs and Lightnings of General Chennault's 14th Air Force, the Hayates first met the enemy late in August. The results were electrifying. Expecting the slower JAAF fighters they had become accustomed to, the Americans suddenly found themselves faced with a tougher adversary. Formed of crack pilots transferred from other JAAF regiments, the 22nd was soon in command of the sky over its domain, and quickly put the JAAF back on the offensive.

The crunch of combat

Pack in Japan, Hayate unit formation got under way rapidly. By the end of September the 1st, 11th, 21st, 51st, 52nd, 70th, 71st, 85th, 103rd and 246th Regiments had received the fighter. New units, outgrowths of the 1st, 8th, 10th, 13th and 14th Flight Drilling Companies, were also being established, with the Hayate, on its way to becoming the most widely-used fighter in the JAAF in the last year of the war. The rapidity of the build-up was directly related to enemy successes in the Pacific, for the decisive battles of the war were coming closer to reality. Anticipating major Allied assaults against the Philippines or Formosa by September 1944, or even Japan by November, an Army-Navy Central Agreement was worked out so that their combined air forces



First operational photograph of the Type 4 fighter Hayate appeared in Japanese press in January 1945. (Koku Asahi via Bueschel)

could be concentrated at the point of battle. Growing pressure on the Philippines, and a sudden acceleration of Allied air strikes, ultimately led Imperial General Headquarters to the correct conclusion that a Philippines invasion was only weeks away. Plans for *Sho* Operation No. 1, code name for the Philippines battle to end the war in Japan's favour, were under way. The 51st and 52nd Hayate Regiments were ordered to the Philippines with the 16th Air Brigade. The 22nd Regiment, in China for only five weeks, was pulled out and joined the 1st and 11th Regiments of the 12th Air Brigade where they were assigned to the Clark Field area and lower Luzon. On 11 October, the new 200th Regiment was also assigned to the Philippines, with unit formation at Akeno beginning the next day. All of the units came under the command of the 30th Fighter Group, exclusively equipped with the Hayate. A final October addition was the 24th Independent Fighter Company, a former Hayabusa unit re-equipped with the Hayate.

The new strength arrived just in time. The available Hayate units found themselves fighting for their lives when, on 14 and 15 October, Allied carrier fighters came over by the hundreds. Then, on 17 October, the American invasion of the Philippines began with a massive landing at Leyte. At that moment all of the plans for *Sho* Operation No. 1 were activated. The Hayates of the 30th Fighter Group, went into action as dive and skip bombers from their Central Philippines' forward bases to attack enemy

Newest Army fighter in service, the Ki.84-1a was rushed into combat with many existing units re-equipped with the fighter in the summer of 1944. (Koku Fan via Bueschel)

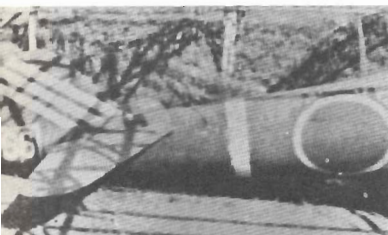




Above: A new Hayate of the 2nd Company, 73rd Fighter Regiment, arrives in the Philippines in December 1944. (Daily Asahi via Bueschel)



Above: Hayates of the 73rd Regiment were both natural dural (2nd Company aircraft at left) and drab camouflaged (1st Company aircraft at the right rear) in Philippines service. (Sekai no Kokui via Bueschel)



Above: Aircraft No. 66 in white tail markings of 1st Company, 73rd Regiment, still carries white combat stripe, a feature largely dropped in later months. (USN via Bueschel)

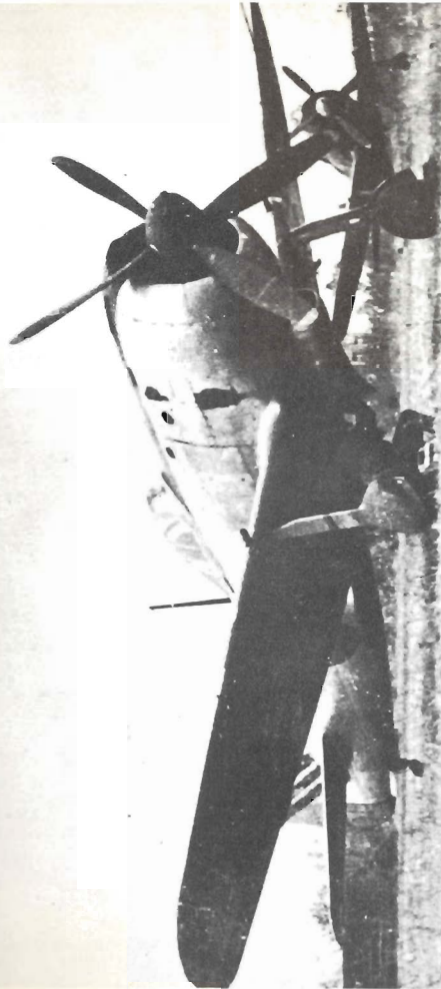
invasion ships off Leyte. Some 70 Hayates were on hand for the missions, with more on the way from Japan as reinforcements as the newly-produced fighters were rushed into service. With the arrival of the 200th Regiment on 25 and 26 October, the 4th Air Army was theoretically ready for the co-ordinated air offensive scheduled to halt the invasion. Almost 400 Army and Navy aircraft were prepared for the battle, with the odds in their favour as they outnumbered their enemy in the air on their own ground.

The battle actually began on 24 October when 80 JAAP aircraft were thrown against the American landing ships, followed by 38 in the afternoon, and another 29 at dusk. As the days passed, the efficiency of the Hayate units dropped rapidly. The optimum maintenance conditions experienced in Japan and China did not exist in the Philippines, and mechanical difficulties that had never been anticipated began to show up in profusion. The Ha.45/11 and Ha.45/12 engines of the Ki.84-Ia model proved to be almost totally unreliable under field maintenance conditions. Flying aircraft they had only recently acquired, many Hayate pilots found the powerful aircraft getting away from them. Propeller wake, hitting the dropped landing flaps, often snapped the aircraft's nose down, and only a skilled pilot could prevent an accident. Many didn't, and the aircraft were washed out. Landing itself was always a minor miracle, for the metallurgy of the landing gear legs depreciated as production rates increased. Poor heat-treating made the main members so brittle that the Hayate pilots often cynically joked about the "4-Sen's easy breaking legs". If the landing wasn't just perfect, the legs would snap, with the pilot skidding in at 100 m.p.h. completely out of control. It even happened if the tyre pressure was a little too high. The landing gear couldn't take the shock. The replacement parts, when they were available, were just as bad. On one delivery flight 80 Hayates started out from Japan on 4 November. Only 14 of them reached their destination at Lingayen Gulf, with the other 66 lost *en route* or dropping out due to engine trouble, landing gear failures, or fuel system and hydraulic problems.

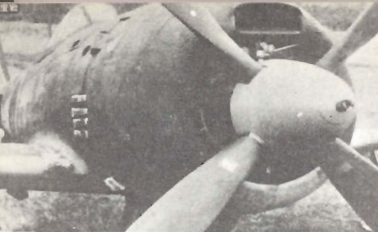
Replacement aircraft received from Japan had consistently lower top speeds than the previous batch. Rated at over 600 km./hr. when the Hayate was introduced, by the end of 1944 only the rare Ki.84-Ia could reach a speed of 400 km./hr. Climb rates and service ceilings also suffered, with pilots drawing

Below: Aircraft No. 91 in red markings of 2nd Company, 73rd Regiment, is natural dural, leading to confusion with American fighters over Luzon. (Maru via Bueschel)

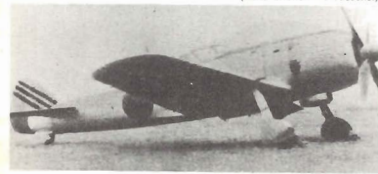




The brittle landing gear legs and unreliable Homare engine of the Hayate led to high non-combat losses in the Philippines. (Hal Andrews via Bueschel)



Above: Ki.84-Ia of the 1st Company, 73rd Fighter Regiment, on Luzon, December 1944. Spinner is white in company colour.
(Koku Shonen via Bueschel)



Above: 2nd Company Hayate with red tail stripes and spinner.
(Hiko Shonen via Bueschel)



Above: Maintenance in the Philippines before a mission. (Koku Asahi via Bueschel)

Below: Ki.84-Ia mounted 2 x 12.7-mm Ho.103 guns in nose and a 20mm Ho.5 cannon in each wing. (Asahigraph via Bueschel)



straws to get a "good" Hayate instead of one of the "lemons" delivered to the combat units.

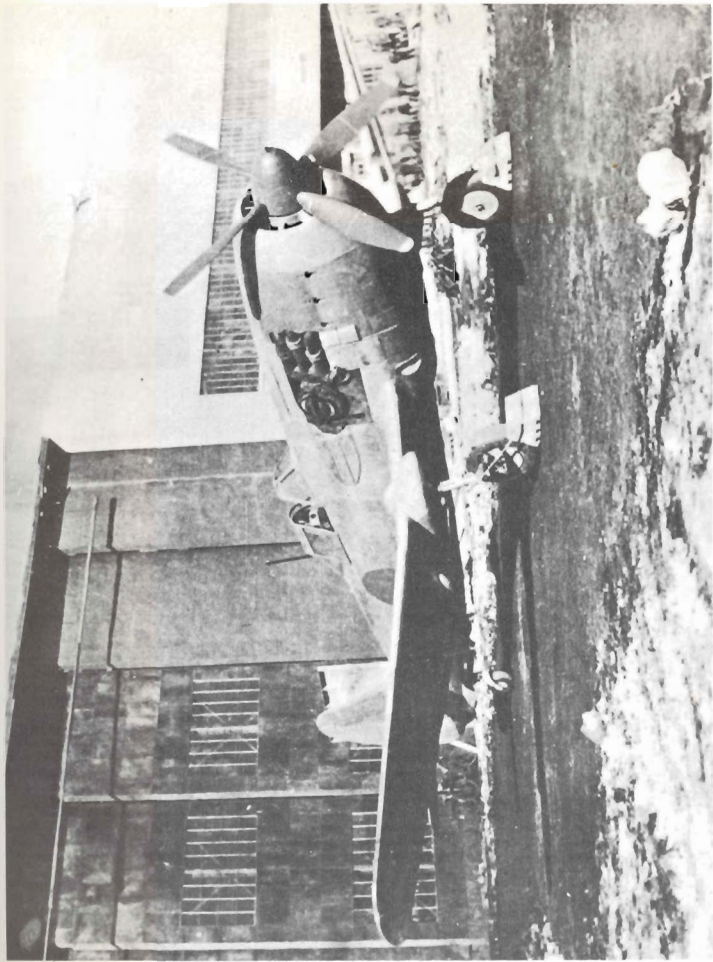
In spite of its deficiencies, in the hands of a skilled pilot the Hayate was a worthy foe. It handled well in the air, and once a pilot mastered its idiosyncrasies his chances of survival and combat success were on a par with the enemy. Facing a determined foe flying advanced aircraft, the American invaders of Leyte recognized the immediate need for land-based fighters to protect the landing operations. On 27 October, immediately after acquisition of the airfield at Tacloban, the USAAF 5th Air Force moved in with P-38 Lightnings. Thirty-three of them were flying from the field the first day, with over 60 by the end of the month. They quickly established local air superiority, squaring off with the Hayate units in daily battles. The handwriting was on the wall.

Losing the Philippines

The aggressive attacks of the dive-bombing Hayates barely made a dent in the invasion forces. Losing ground day-by-day, the 4th Air Army called for more reinforcements. Eleven new fighter and bomber regiments were readied for the Philippines. Equipped with Hayates, the 29th and 246th Regiments arrived in mid-November, with the quickly formed 71st Regiment landing at the end of the month, followed by the 72nd and 73rd Regiments early in December. They were accompanied by the loud fanfare of the Japanese Press. Reaching the battle front at a time when American air strength was climbing in geometric progression, the Hayate units were quickly chewed up. Within a few weeks the 73rd Regiment was wiped out, to be quietly disbanded on paper in the official records in Tokyo the following May. The Philippines campaign rapidly took on the aspects of a disaster as JAAF losses, running at 52 per cent of strength in October, jumped to 79 per cent by the third week of November. Most of these losses were non-combative, with the majority of the aircraft lost on the ground. In an attempt to realign its forces to reverse the trend, the 4th Air Army shuffled unit assignments with the 2nd Air Army to the south to better prepare itself for further invasion attempts. By 8 December, the 4th Air Army had only 133 operational aircraft left. And the worst was yet to come. On 7 December, this strength was cut almost in half in air battles over Leyte. The final invasion at Lingayen Gulf was only a month away.

The JAAF pilots that survived the Philippines campaign often felt they lived charmed lives. Major Ikida Takano, Commander of the 52nd Regiment, survived the campaign and the war, as did Major Saburo Togo, Commander of the 1st Regiment. Togo ranked as an ace with 21 "kills" of Allied aircraft. Other scoring Hayate survivors were Warrant Officer Katsuaki Kira, who went on to the Okinawan campaign and ended the war with 25 "kills"; Captain Shiro Kono of the 1st Regiment; Eisuke Tsusaka of the 72nd Regiment; and many others who flew or scurried out of the Philippines ahead of the advancing Americans.

Others were not so lucky and the losses were enormous. Major Toshio Sakagawa, commander of the 200th Regiment, and one of the few JAAF pilots to almost reach the half-century mark as an ace, was shot down over Leyte. He had 49 "kills" to his



Haytle technology and experience was applied to the Nakajima Ki.87 Army Experimental High Fighter, and end-of-war interceptor project. (William Green via Busschel)



The manifold exhaust system of the Model 1A and subsequent models used engine exhaust for added thrust. (Koku Asahi via Bueschel)

credit. Bombed on the ground, shot out of the sky, and continually threatened by mechanical failures, the Hayate pilot was a man on the spot. But the battle was not always one-sided. On 24 December, returning from the interception of B-24 Liberators attacking Clark Field, a 1st Regiment pilot was jumped at low altitude by four P-38's over his base when his fuel was all but gone. While the ground crewmen below cheered, the five aircraft above tangled in full view. A veteran of four years of combat with over 2,000 flying hours behind him, the Hayate pilot held his fire while the Lightnings continued to attack him one at a time. Suddenly climbing, he downed two P-38's in one climbing pass. The other two Lightnings quickly departed as the Hayate turned to land with empty fuel tanks.

One Hayate of the 1st Regiment had to be discarded when its pilot dived out of an ambush by sixteen American Navy Hellcats at 20,000 feet. Coming straight down, and hitting almost 500 m.p.h., the pilot barely pulled it out and got back home. The dural skin was so wrinkled, and so many rivets had popped, the aircraft was completely useless. On another occasion, flying back to Clark Field at low altitude from a dive-bombing mission two days before the Lingayen Gulf invasion, a Hayate pilot ran into four Grumman Hellcats on the prowl. With a damaged landing gear hanging down serving to tempt the American fighters into battle, the Japanese pilot

pushed the aircraft into a valley at treetop height to get away. One Hellcat followed. Misjudging the speed, the American plane overran its target, and was immediately shot down. To avenge their buddy, the other Hellcats closed in, just as the Hayate headed toward a low mountain. Suddenly, the Hayate dropped its combat flaps and made a tight turn to the left. The lead Hellcat, caught in the trap, flipped to the right but couldn't clear the trees. It exploded in the hillside. The Hayate escaped as the other two Hellcats recovered control, with nothing left to do but return to their carrier.

By the end of January the campaign was over. When American forces took over Clark Field on 28 January 1945, Japanese air activity was brought to an end. As a reminder of the confrontations of the past three months, the new masters of Luzon found numerous examples of the Hayate in the area, with some in almost mint condition. Immediately placed in the hands of the Technical Air Intelligence Unit—South-west Pacific Area (TAIU-SWPA), the friendly "Frank" was refurbished and flown. Evaluation would reveal the aircraft's good points, and pinpoint the bad, so that Allied pilots would have first-hand knowledge of what they were up against. The Philippines fighting had demonstrated that they needed it.

Help from the Homeland

Exactly the same thing was happening in Japan. The Hayate was being dissected by the Japanese Army, and steps were being taken to enhance mechanical reliability and improve performance. The Hayate was continually being tested, and new ideas were considered in profusion. At the 1st Air Technical Laboratory at Tachikawa a ski-equipped pre-production Hayate was under test in May 1944 for possible use in Manchoukou or the northern Kuriles. Poor performance, reported by test pilot Imamura, a Technical Major on the staff at Fussa, ended the idea. Engine vibration tests were conducted in August 1944, just as the Hayate entered combat, with mounting modifications incorporated in the production lines. Armament changes were also made, with model variants entering production in parallel with the Ki-84-Ia. With two wing-mounted 20 mm. Ho-5 cannon, and two more on the fuselage, the Hayate became the four-cannon Ki-84-Ib, followed by the Ki-84-Ic Model 1C with two 20 mm. Ho-5 and two 30 mm. Ho-105 cannon. Known in service as the Ki-84b and Ki-84c respectively, the newer models entered service in the Philippines and Japan before the end of 1944. Plans were even made for a two-seat dual-control trainer version for conversion training. None were built, although a number of two-seat versions were created out of existing Ki-84-Ia aircraft in which case the second set of controls was missing.

The most critical problem facing the Hayate was the total unreliability of its power plant. Low oil pressures and high operating temperatures continually caused trouble. The greatest fear of a Hayate pilot was engine overheating. One moment things would be humming, and then suddenly the oil temperature would go up over 85°C as the oil cooler would stop functioning. In five or ten minutes you could see the trouble as a thin stream of black smoke came out of the exhausts. As the Ha.45 heated up the smoke

In attempts to improve engine reliability Homare Ha.45 Models 11, 12, 21 and 23 were progressively mounted on the Ki-84-Ia.

(Hiko Shonen via Bueschel)



would turn white, and then thick and black as the engine froze. The sequence took ten to fifteen minutes, and chances were that the pilot was too far away from his base to make it back. It was just like getting shot down, and there wasn't a thing that could be done about it. In combat, if a Hayate was flown upside down, the oil pressure dropped to zero and the engine was sure to freeze. The whole problem was still under investigation at the 1st Air Technical Laboratory at Tachikawa when the war ended.

Fuel pressure drops were also a problem. Later production models mounted the improved Ha.45/21, a model that offered slight improvement. It wasn't until the Ha.45/23 was available, with its low-pressure fuel injection system, that the problem was partially solved. Just as the new engine began to reach the Hayate production lines, its own production was all but stopped by an American B-29 attack.

Other Hayate problems were a result of material shortages. Low stocks of dural led to tests of wooden tail surfaces, with production proceeding at Nakajima in the spring of 1945 on the Ki.84-II Type 4 Fighter, Model 2 in which the wing tips, control rods, and much of the rear fuselage were made of wood. Produced in all three armament variations, the Ki.84-II was known in service as the Ki.84a, Ki.84b or Ki.84c in the same fashion as its earlier models. Powered by the Ha.45/21, and later the Ha.45/23 and Ha.45/25, the Model 2 Hayates supplemented and would have ultimately replaced the Model 1's.

The most dramatic attempts at material conservation and utilization were the "steel Hayate" and "wooden Hayate" projects. The first to be undertaken was given the Army designation Ki.113 Army Experimental Fighter Hayate in September 1944. The basic idea was to use carbon steel instead of dural for the ribs, bulkheads, forged parts and even the outer skin surfaces. Steel structure tests were started under the direction of Technical Captain Fujishina of the 1st Air Technical Laboratory in October 1944, and assemblies were completed in January 1945. First flown in July 1945, the project was dropped even though three more prototypes were being finished up and some 30 more were scheduled for production and evaluation. The high gross weight and poor resulting performance was a critical factor, but the primary decision to forget the idea was based on the fact that existing production facilities at Nakajima's Ota Plant couldn't handle the difficult material.

The wooden Hayate project had a similar fate, although its potential was far greater. First conceived as a possibility by the 1st Air Technical Laboratory staff in the summer of 1944, following a series of studies on the use of wood in aircraft that had been started in March 1943, the JAAF assigned the project to Tachikawa in October 1944 as the Ki.106 Army Experimental Fighter Hayate-Kai. Long the "second-source" for Nakajima-designed fighters, and producer of the Hayabusa ever since it was replaced on Nakajima's production lines, Tachikawa offered a reservoir of fighter productive capacity to the Army. The first job was design, and it was extremely difficult. The demand to re-create the Hayate's lines in wood was almost too much. Wood just couldn't be bent that way, and when it was cut or curved to conform to the Hayate pattern its strength was in question. By the spring of 1945 the Ebetsu shops of the Ohji Paper Company, Ltd., sub-contractor to Tachikawa, were



A rare sight, A Hayate out in the open on its Philippines airfield.
(Koku Fan via Bueschel)

busy glueing three examples of the new fighter together. Much of the work was being done by High School girls who just did what they were told, thereby fabricating a fighter even though they were completely unskilled in its production. Tachikawa engineers Shinagawa and Nakagawa, the chief instigators of the project, rushed to Burma when a British DH.98 Mosquito was downed in fair condition so that they could study its construction details. They were pleased with their findings. Impressed with the Mosquito, they still ranked their Ki.106 project higher on the design scale. Production proceeded, and in June 1945 the first example was completed. The aircraft was beautiful, and apart from a few detailed points to adjust for the use of wood, it looked for all the world like a Hayate. One of its most dazzling features was its finish. Sanded and sealed with lacquer like a fine piece of furniture, the plywood skin of the Ki.106 Hayate-Kai was then polished after application of a thick coat of wax. Powered with the standard Ha.45/21, and armed with four 20mm. Ho.5 cannon, the first prototype was 600 pounds heavier than its parent Ki.84-Ib. Test flown in July, the Ki.106 almost equalled the production Hayate in level speed primarily due to its fantastic lacquered finish. But the weight penalty showed up in other areas. Climb was terrible, and the aircraft had lost the famous Hayate manoeuvrability. When the second prototype was being finished the armament was reduced to two cannon in hopes of correcting the performance faults by making the aircraft lighter.

Undergoing tests in August 1945, flown by Fussa test pilot Major Yasuhiko Kuroe, the first Ki.106 prototype hit 618 km./hr. at 7,300 metres. At that point the plywood skin began to peel off in the air, but Kuroe landed the aircraft safely. This led to more work on the bonding adhesives, and further tests.

More Hayates were destroyed on the ground than in the air in the Philippines. (Koku Shonen via Bueschel)



The second prototype incorporated the changes, and was being shipped to Fukuo near Tokyo on 13 August 1945, to await the arrival of Major Kuroe for further testing. The end of the war stopped the plan, and the prototype was picked up and preserved by the occupying Americans for evaluation of the idea in the United States. The Japanese themselves had all but given up on their plan, coming to the conclusion that mass production of the Ki.106 was impossible as the required man-hours almost doubled that of the Hayate. Design problems were also not completely solved. For instance, the wing spar, requiring almost impossible bends, kept snapping back to its original position on its jigs. The thought of having that happen in the air was enough to make any Hayate-Kai pilot worry himself to death.

Other efforts were made to increase Hayate production to assure a steady supply in the face of increasing B-29 attacks on the Homeland. One answer was to displace the production, and by March of 1945 the Ha.45/21 powered Hayate Model 1 was in production at the Harbin, Manchoukuo, plant of the Manshu Aeroplane Manufacturing Company. Other dispersal plants were being set up by Nakajima in caves, tunnels, schools and small factories to keep Hayate production going through the bombings.

It was the Manshu production effort that gave the JAAF another chance at improving the reliability of the Hayate in the air. With engineering time jammed in Japan, the Manshu design group undertook the conversion of the Ki.84-I to Mitsubishi Ha.112-II (Ha. 33/62) Kinsei power. This was a much lower rated engine, but it was also lighter. Taking the fourth Ki.84-Ia off their production line at Harbin, and fitting it with the 1,500 h.p. engine, the satellite nation's engineers were converting the modified fighter in April 1945. The conversion had already proved itself with the Ki.100 adaptation of the Ki.61-II Hien, and it would do so again with the Manshu Hayate under a hurriedly assigned Army

Ki.116 designation. The Manshu staff worked night and day to convert the aircraft, lengthening the engine mount and enlarging the vertical tail to balance the airframe with the lighter engine. A thousand pounds had been cut out of the Hayate design in the process, and Manshu engineers felt they could have cut another 10 per cent if they put their mind to it. Although testing time was limited the Ki.116 performed well, hitting almost 500 m.p.h. and comparing to the Kawasaki Ki.100-Ib. It is probable that the model would have been produced if the war had stretched into 1946.

The final fight

While the engineering race continued, the war went on. With the collapse of the Philippines the front moved closer to Japan. By March 1945 the fire-bombing raids had begun, and the JAAF was frantic over its inability to defend Japan. The Hayate was little help. With the Ki.84-equipped 22nd, 23rd, 47th, 51st, 52nd and 200th regiments now assigned to the 10th Air Division's Eastern Defence Sector; the 20th, 70th, 111th, 112th and 146th in the 11th Air Division's Middle Defence Sector; and the 71st, 101st, 102nd and 103rd in the 12th Air Division's Western Defence Sector; the fighter was numerically important in the defence of Japan. But it was important against the B-29. A tactical fighter, the Hayate could be used against escorting Allied fighters or carrier aircraft, but was only rarely successful against the Superfortress. Its real test of strength came elsewhere; over Okinawa, in China and in South-east Asia. With the invasion of Okinawa in April, Hayate units were moved to southern Kyushu for hit-and-run raids on the American positions. They kept it up until the battle was over in June, with Hayates being used in both conventional and Special Attack suicide missions. Thrown in again at enemy transports in their bombing rôle, the Hayates were also used in

SPECIFICATIONS: NAKAJIMA Ki.84 TYPE 4 FIGHTER HAYATE (HURRICANE)

*First 3 prototypes had single exhaust stack.

**Some examples had racks for 2 x 250kg bombs. One example had ski gear.

***Some examples had increased span to test Ki.117 and Ki.84P designs.

†Later models had Ha.45/12, Ha.45/21 and Ha.45/23.

††Manshu produced 95.

†††All production models la, b & c.

Model and Specs.	Ki.84 Prototypes	Ki.84 Pre-production I	Ki.84 Pre-production II	Ki.84-Ia	Ki.84-Ib	Ki.84-Ic	Ki.84-I-Kai
Span (M)	11-238	11-238	11-238***	11-238	11-238	11-238	11-238
Length (M)	9-920	9-920	9-920	9-920	9-920	9-920	9-920
Height (M)	3-385	3-385	3-385	3-385	3-385	3-385	3-385
Wing Area (M ²)	21-00	21-00	21-00	21-00	21-00	21-00	21-00
Weight Empty (kg)	2,698	2,698	2,698	2,698	2,698	2,698	2,698
Weight Loaded (kg)	3,890	3,890	3,890	3,890	3,890	3,890	3,890
Max. Speed (km/hr)	624/6,500m	624/6,500m	624/6,500m	624/6,500m	624/6,500m	624/6,500m	624/6,500m
Cruising Speed (km/hr)	380/4,500m	380/4,500m	380/4,500m	380/4,500m	380/4,500m	380/4,500m	380/4,500m
Climb (m/min)	5,000/6 "26"	5,000/6 "26"	5,000/6 "26"	5,000/6 "26"	5,000/6 "26"	5,000/6 "26"	5,000/6 "26"
Armament—M.G. (mm)	2 x 12-7	2 x 12-7	2 x 12-7	2 x 12-7	—	—	2 x 12-7
Armament—Cannon (mm)	2 x 20	2 x 20	2 x 20	2 x 20	4 x 20	2 x 30 2 x 20	2 x 20
Armament—Bombs (kg)	—	—	2 x 250	2 x 250	2 x 250	2 x 250	2 x 250
Power Unit—Mfr.	Nakajima	Nakajima	Nakajima	Nakajima	Nakajima	Nakajima	Nakajima
Type	Ha.45/11	Ha.45/11	Ha.45/11	Ha.45/11†	Ha.45/21‡	Ha.45/21‡	Ha.45/21
H.P.	1,800	1,800	1,800	1,800	1,990	1,990	1,990
Aircraft—Mfr.	Nakajima	Nakajima	Nakajima	Nakajima	Nakajima	Nakajima	Nakajima
First Built	March 1943	Aug. 1943	March 1944	April 1944	1944	1945	Autumn 1944
Number Built	4*	83**	42	3,450†††	(600)	(350)	(20)‡‡

tactical strikes on enemy airfields. On one volunteer mission 11 Hayates suddenly struck the enemy airfields in the north and centre of Okinawa the night of 15 April 1945, dropping their bombs on the standing American aircraft. The resultant explosions cheered the defending Japanese soldiers on the island although the cost was high. Eight of the Hayates never returned, and a ninth luckily crash landed on the small island of Kikai Jima, with its pilot barely missing death or capture.

In China and Chosen, the Hayate was back in evidence with the 22nd, 25th and 85th Regiments. Manchoukuo harboured the 70th, elements of the 85th, and 104th Regiments, and the 24th Independent Fighter Company. On Formosa the by-passed 13th, 21st, 24th, 29th and 50th were on hand. To the south, in Indo-China and Thailand, the fighter equipped the 13th and 64th Regiments. They were the last new fighters to be received by these overseas units. The Hayate pilots were among those that ran up the highest combat scores. Captain Hideshima, killed over Japan, had shot down 44 enemy aircraft from the Sino-Japanese "incident" to the time of his death; Captain Nakazu Ozaki killed over China with the 25th Regiment scored 40; Lieutenant Morikichi Kanae, commander of the 25th Regiment, survived the war with 25 "kills"; Sergeant Kobayashi, flying Shoki and Hayate fighters with the 47th Regiment in the defence of Tokyo, died after his 12th victory over a B-29; Sergeant Major Goro Miyamoto, flying the Hayate, and later the 5-Sen Ki.100, survived the war with 26 "kills"; in Thailand with the 64th Regiment, Warrant Officer Yoshihito Yasuda survived the war with a score of over 30; Corporal Noboru Naito, flying the Ki.84-II with the 520th Temporary Interception Regiment, scored three; Lieutenant Tomiya, with the 104th Regiment at Anzan, Manchoukuo, had the same score.

The superior characteristics of the Hayate did not go unnoticed, in spite of the aircraft's handicaps. In

the closing months of war a number of improvement projects had captured JAAP attention. One of the first, a high-altitude interceptor version of the basic Ki.84-I series, made use of a pre-production airframe to which wide-span wings were added. Known as the Ki.84N project, with supercharged Nakajima Ha.219 power of 2,400 h.p. the variant was to be further developed, following an Army-sponsored design meeting on 4 June 1945, as the Ki.117. An even longer-span version became the Ki.84P project. In a more conventional mode, the Ki.84R project would make use of the supercharged Ha.45/44 engine with a turbo-supercharger on the underside of the fuselage. The projected Ki.84-III production model may have been the same aircraft. Other advanced projects, such as the Nakajima Ki.87 and the Tachikawa Ki.94-II and Ki.104 supercharged interceptors, showed obvious Hayate influence.

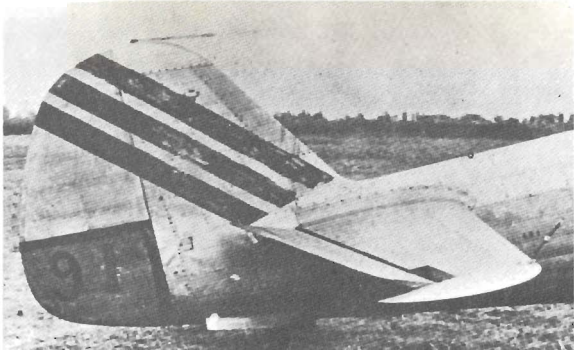
The end of the Pacific War didn't end the Hayate's career as abruptly. While hundreds were found in Japan, and ultimately destroyed in the Occupation's demilitarization programme, numerous other examples survived in mainland China where they were taken over by both sides in China's civil war. Examples found in Nanking, Peking and Hankow were quickly marked with Nationalist Chinese insignia, although they do not appear to have been flown in combat. The Chinese Communist forces, however, made some use of the high-performance fighters. Picking up examples in Manchoukuo and North China, as well as the Nationalist Hayates at Peking, the Red Army stripped them of their paint and put them into service. Flown by Japanese mercenary pilots, and ultimately by Chinese pilots trained at a Japanese-manned flight school at Harbin, Manchuria, the Hayates were used sporadically on strafing missions in advance of the Communist ground forces. Maintenance and replacement problems soon put them out of commission, and the Hayate ended its days on the ground in helpless peace.

NOTE: All dimensions in original Japanese metric. Dimensions and climb in metres (m), weights in kilograms (kg), distances in kilometres (km) and speeds in kilometres-per-hour (km/hr.). Data in parenthesis are estimates or approximate.

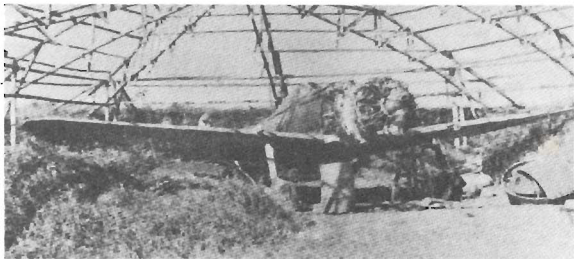
† Later models had Ha.45/23 and some had Ha.45/25.
‡ Two-seat conversions of Hayate. Dual-control production model planned.
§ Included in Ki.84-Ib and Ic production.

§ Turbo-supercharger.
§§ Project dropped in favour of Ki.84R.
§§§ Later models had 2 x 12-7 and 2 x 20.

Ki.84-II Hayate-Kai	Ki.84-III	Ki.84P	Ki.84R	Ki.106 Prototypes	Ki.113	Ki.116	Ki.117
11-238 9-920 3-385 21-00	11-238 9-920 3-385 21-00	9-920 3-385 24-50	11-238 9-920 3-385 21-00	11-230 9-950 3-690 21-00 2-948 3-900	11-238 9-920 3-385 21-60 2-880 3-950	11-238 21-00 2-300 3-500	9-920 3-385 22-60
—	—	2 x 12-7 2 x 20	2 x 12-7 2 x 20	620/8,000m 600/6,400m 5,000/5'00"	623/6,500m 2 x 12-7 5,000/6'54"	2 x 12-7 2 x 20	2 x 12-7 2 x 20
4 x 20 or 2 x 20 2 x 30 2 x 250	Unknown	—	—	4 x 20§§§	2 x 20	—	—
Nakajima Ha.45/21‡	Nakajima Ha.45/25‡	Nakajima Ha.44/13(Ha.219)	Nakajima Ha.45/44§	2 x 250 Nakajima Ha.45/21	2 x 250 Nakajima Ha.45/21	Mitsubishi Ha.33/62 (Ha.112-II) 1,500 Manshu	Nakajima Ha.44/13 (Ha.219) 2,500 Nakajima
2,000 Nakajima	2,000 Nakajima	2,500 Nakajima	2,000 Nakajima	1,990 Tachikawa	1,990 Nakajima	1,500 Manshu	2,500 Nakajima
1945 †††	(Late 1945) None	(Late 1945) None§§	(Late 1945) None	June 1945 4	July 1945 4	April 1945 1	(Late 1945) None



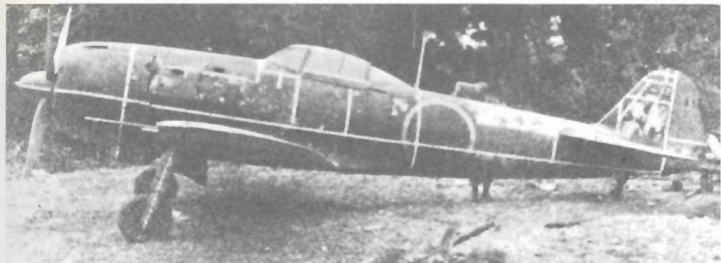
Left: Individual aircraft marking of 73rd Regiment is based on factory number. This Hayate is Nakajima production number 491, with last two digits used as 2nd Company identification as 91. (Koku Asahi via Bueschel)



Left: The Philippines campaign provided invading American forces with numerous examples of the new Type 4 Hayate. (USN via Bueschel)



Below: Intact Model 1a Hayate of 1st Company, 1st Fighter Regiment, captured on Luzon. (USN via Bueschel)



Above: Red rudder denotes 1st Company, 1st Regiment. Lines are marking tapes to measure dimensions. (USN via Bueschel)

Below: Code-named "Frank", the Clark Field Hayate immediately came under Technical Air Intelligence Unit control for evaluation.



Below: Hayate losses in the Philippines literally drained the JAAF of all Type 4 fighter production in 1944. (Koku Fan)

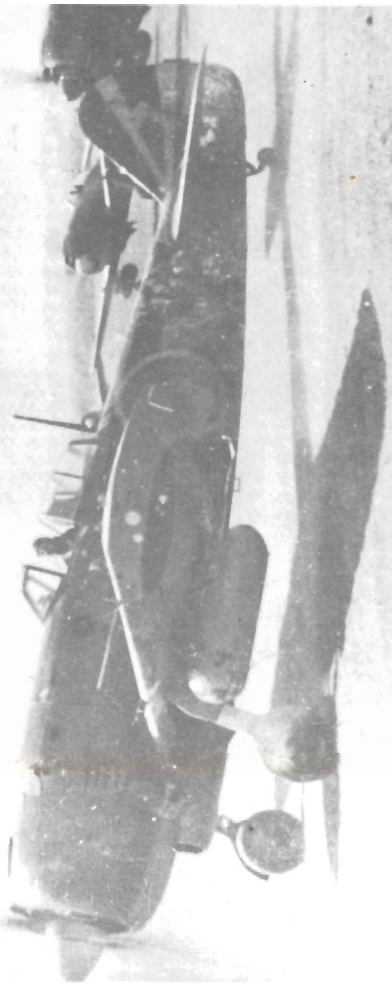




Miraculously intact, a Model 1A Hayate of the 2nd Company, 11th Fighter Regiment, is discovered by Americans at Clark Field, January 28 1945. (USAAF via Bueschel)

Company markings of aircraft No. 46, 2nd Company, are red edged in white over drab finish. Individual number 46 is white. (USAAF via Bueschel)





Haynes of the 1st Company, 102nd Fighter Regiment, take off for a mission against American fighters over Okinawa, May 1945. This famous photograph has frequently been misidentified as showing the 52nd Regiment in the Philippines. [Hideo Ardo via Bueschel]



Above: Hayate of the 520th Temporary Interception Regiment skidded in to a relatively undamaged landing shows itself off to Allied forces. (Sekai no Kokuki via Bueschel)

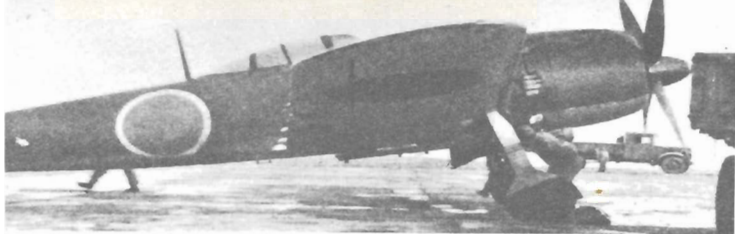
Below: Taking-off on a Taiatsu suicide mission against Okinawa in a bomb-laden Hayate. (Sekai no Kokuki via Bueschel)



Above: Hayates ready for their sorties against Okinawa. (Sekai no Kokuki via Bueschel)

Below: New Hayate units were rapidly formed as existing units were decimated. (Maru via Bueschel)





Above: As the war inched closer and closer, Hayates were retained for home defence. (Sekai no Kokuki via Bueschel)



Above: On station in Japan, front. (Koku Asahi via Bueschel)

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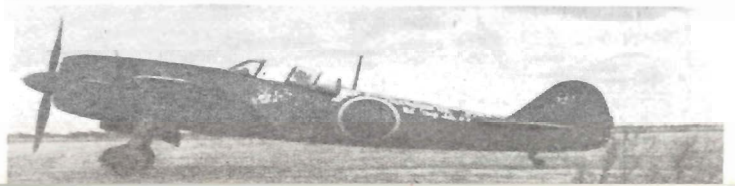
Below: Rear! (Koku Asahi via Bueschel)



Below: Operational Hayates late April 1945. (Koku Asahi via Bueschel)



Below: The Hayate displays itself for the Japanese press, April 1945. (Koku Asahi via Bueschel)





Red-tipped vertical tail denotes 2nd Battalion, 1st Battalion of 111th Regiment had white markings. (N. Sako via Bunsched)



Above: Late-model Ki.84-Ia of 2nd Battalion, 111th Fighter Regiment, Gifu, Japan, July 1945. (N. Saito via Bueschel)



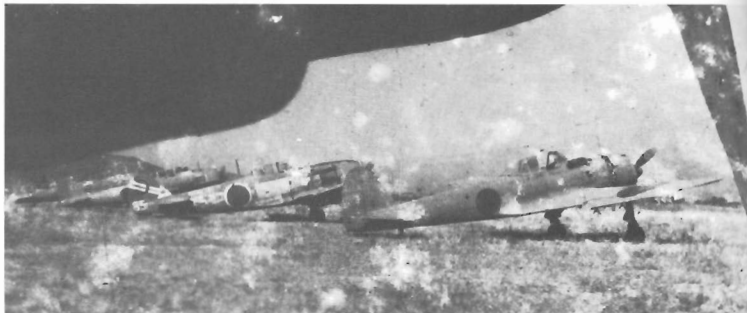
Right: Hayate in southern Japan ready for Allied invasion scheduled for November 1945. (Sekai no Kokuki via Bueschel)



Right: Looking out over its revetment, a combat weary Hayate awaits the next alert. (N. Saito via Bueschel)

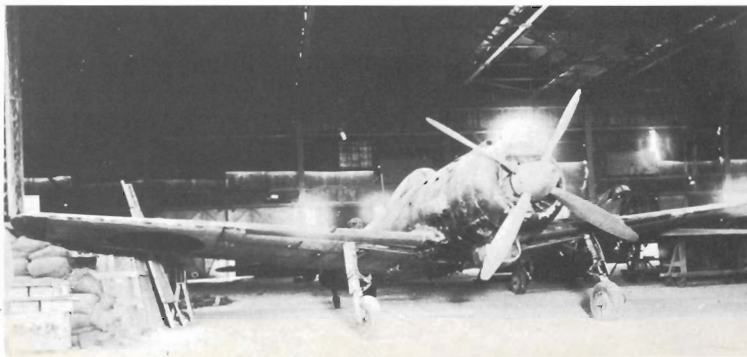


Right: Fighters over Japan, and a Hayate goes to meet them. (N. Saito via Bueschel)



Above, both pictures: A Ki.84a of the 101st Air Combat Regiment, 2nd Company in a line-up of Ki.43's on Shizuhamu Airfield, Shizuoka Prefecture, Japan late in 1945. Note the arrow of the 101st's insignia is from leading to trailing edge of the fin and rudder. (A. Ishikawa)

Below: Make-shift maintenance kept as many of the touchy Hayates in the air as possible. (M. Toda via blueschel)



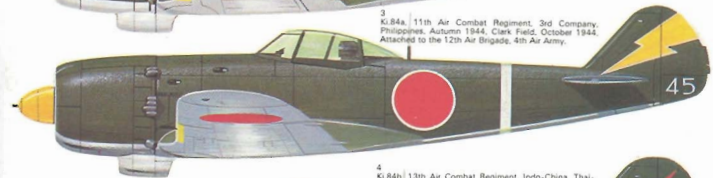
1
Ki.84a, 1st Air Combat Regiment, 1st Company, Philip-
pines, Autumn–October 1944. Attached to the 12th Air
Brigade, 4th Air Army.



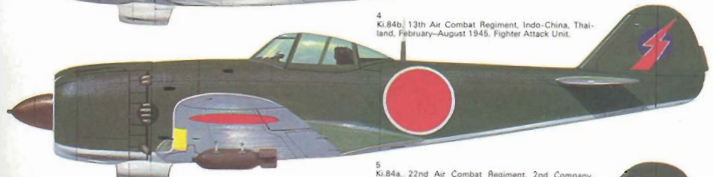
2
Ki.84a, 1st Air Combat Regiment, 3rd Company, Philip-
pines, Autumn–October 1944. Attached to the 12th Air
Brigade, 4th Air Army.



3
Ki.84a, 11th Air Combat Regiment, 3rd Company,
Philippines, Autumn 1944, Clark Field, October 1944.
Attached to the 12th Air Brigade, 4th Air Army.



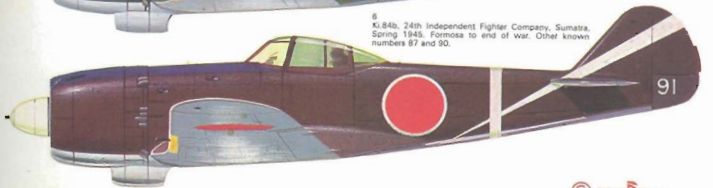
4
Ki.84b, 13th Air Combat Regiment, Indo-China, Thai-
land, February–August 1945, Fighter Attack Unit.



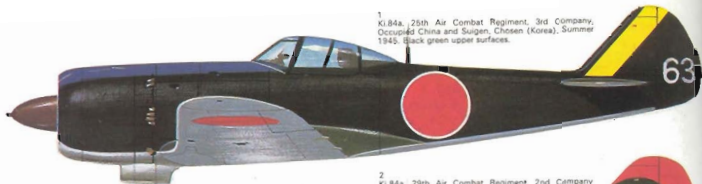
5
Ki.84a, 22nd Air Combat Regiment, 2nd Company,
Hankow, China, March–August 1944. First unit to
receive the Ki.84.



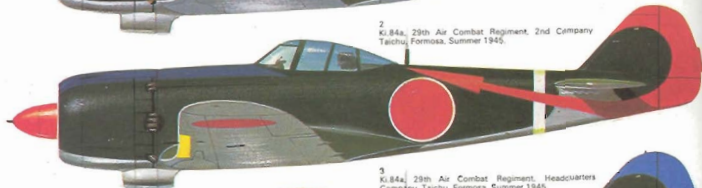
6
Ki.84b, 24th Independent Fighter Company, Sumatra,
Spring 1945, Formosa to end of war. Other known
numbers 87 and 90.



1
Ki.84a, 25th Air Combat Regiment, 3rd Company,
Occupied China and Suigen, Chosen (Korea). Summer
1945. Black green upper surfaces.



2
Ki.84a, 29th Air Combat Regiment, 2nd Company
Taichu, Formosa, Summer 1945.



3
Ki.84a, 29th Air Combat Regiment, Headquarters
Company, Taichu, Formosa, Summer 1945.



4
Ki.84a, 47th Air Combat Regiment, 1st Company,
Eastern Defence Sector, Tokyo Air Defence, Summer
1945.



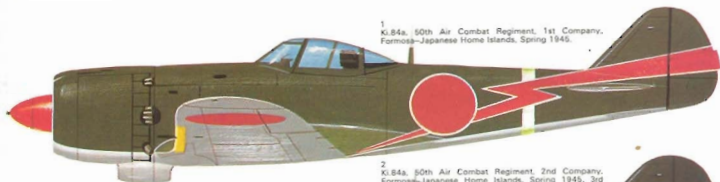
5
Ki.84a, 47th Air Combat Regiment, 2nd Company,
Company Commander's aircraft, Eastern Defence Sector,
Tokyo Air Defence, Summer 1945.



6
Ki.84a, 47th Air Combat Regiment, 3rd Company,
Eastern Defence Sector, Tokyo Air Defence, Summer
1945.



1
Ki.84a, 50th Air Combat Regiment, 1st Company,
Formosa-Japanese Home Islands, Spring 1945.



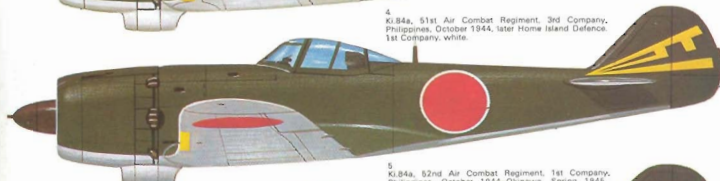
2
Ki.84a, 50th Air Combat Regiment, 2nd Company,
Formosa-Japanese Home Islands, Spring 1945, 3rd
Company, white.



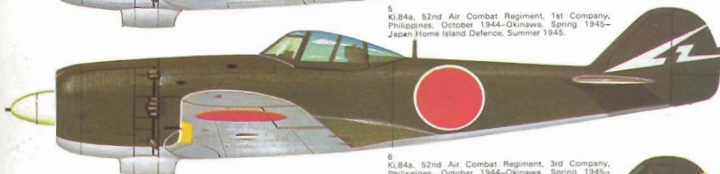
3
Ki.84a, 51st Air Combat Regiment, 2nd Company,
Philippines, October 1944, later Home Island Defence
Japan.



4
Ki.84a, 51st Air Combat Regiment, 3rd Company,
Philippines, October 1944, later Home Island Defence,
1st Company, white.



5
Ki.84a, 52nd Air Combat Regiment, 1st Company,
Philippines, October 1944-Okinawa, Spring 1945-
Japan/Home Island Defence, Summer 1945.



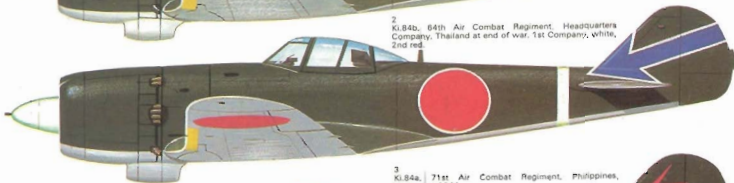
6
Ki.84a, 52nd Air Combat Regiment, 3rd Company,
Philippines, October 1944-Okinawa, Spring 1945-
Japan/Home Island Defence, Summer 1945, 2nd
Company, red.



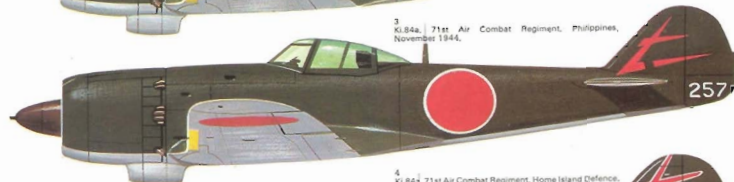
1
Ki.84b, 64th Air Combat Regiment, 3rd Company, Thailand at end of war.



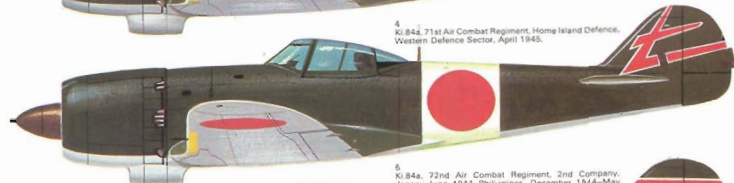
2
Ki.84b, 64th Air Combat Regiment, Headquarters Company, Thailand at end of war, 1st Company, white, 2nd red.



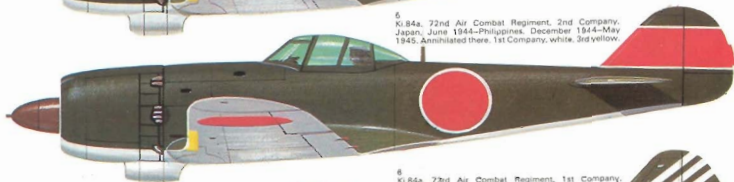
3
Ki.84a, 71st Air Combat Regiment, Philippines, November 1944.



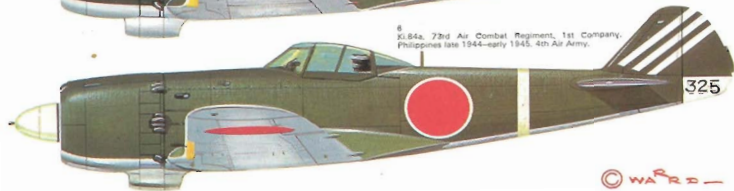
4
Ki.84a, 71st Air Combat Regiment, Home Island Defence, Western Defence Sector, April 1945.



5
Ki.84a, 72nd Air Combat Regiment, 2nd Company, Japan, June 1944-Philippines, December 1944-May 1945. Annihilated there. 1st Company, white, 3rd yellow.



6
Ki.84a, 72nd Air Combat Regiment, 1st Company, Philippines late 1944-early 1945, 4th Air Army.





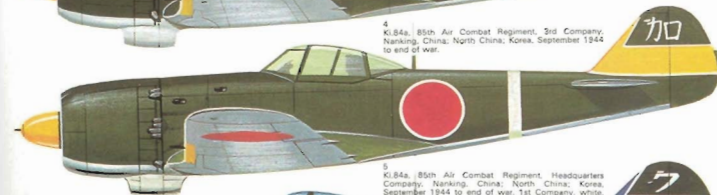
1
Ki-84a, 73rd Air Combat Regiment, 2nd Company,
Philippines late 1944–early 1945, 4th Air Army.



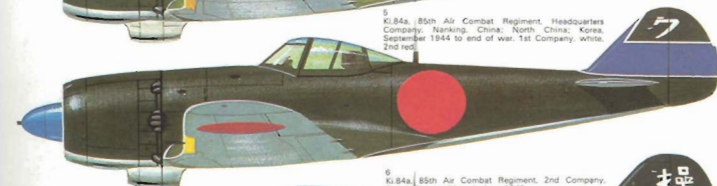
2
Ki-84a, 73rd Air Combat Regiment, 2nd Company,
Philippines late 1944–early 1945, 4th Air Army.



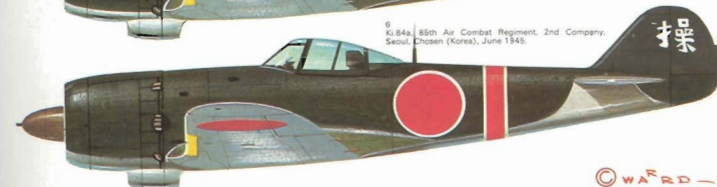
3
Ki-84a, 73rd Air Combat Regiment, 3rd Company,
Philippines late 1944–early 1945, 4th Air Army.



4
Ki-84a, 85th Air Combat Regiment, 2nd Company,
Nanking, China; North China; Korea, September 1944
to end of war.

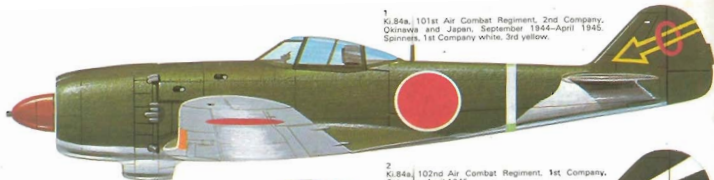


5
Ki-84a, 85th Air Combat Regiment, Headquarters
Company, Nanking, China; North China; Korea,
September 1944 to end of war, 1st Company, white,
2nd red.



6
Ki-84a, 85th Air Combat Regiment, 2nd Company,
Seoul, Chosen (Korea), June 1945.

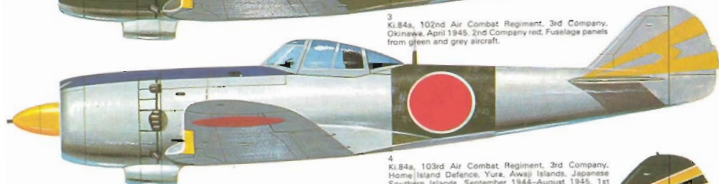
1
Ki.84a, 101st Air Combat Regiment, 2nd Company.
Okinawa and Japan, September 1944–April 1945.
Spinners, 1st Company white, 3rd yellow.



2
Ki.84a, 102nd Air Combat Regiment, 1st Company.
Okinawa, April 1945.



3
Ki.84a, 102nd Air Combat Regiment, 3rd Company.
Okinawa, April 1945. 2nd Company red. Fuselage panels
from green and grey aircraft.

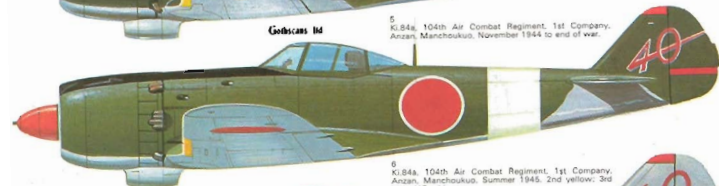


4
Ki.84a, 103rd Air Combat Regiment, 3rd Company.
Home Island Defence, Yura, Awaji Islands, Japanese
Southern Islands, September 1944–August 1945. 1st
white; 2nd red; HQ blue.



Goetscan 1d

5
Ki.84a, 104th Air Combat Regiment, 1st Company.
Anzan, Manchoukuo, November 1944 to end of war.



6
Ki.84a, 104th Air Combat Regiment, 1st Company.
Anzan, Manchoukuo, Summer 1945. 2nd yellow; 3rd
blue; HQ white.



1
Ki.84a, 104th Air Combat Regiment, 2nd Company,
Anzan, Manchoukuo, Summer 1945.



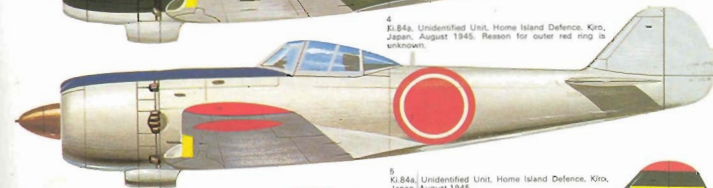
2
Ki.84a, 104th Air Combat Regiment, 3rd Company,
Anzan, Manchoukuo, August 1945. Fought in "7 Day
War" against Soviets and Mongolians. Flown by Lt.
Tomiya, Company Commander.



3
Ki.84a, 111th Air Combat Regiment, 2nd Battalion,
Gifu, Japan, Middle Defence Sector, July-August 1945.
1st Battalion white.



4
Ki.84a, Unidentified Unit, Home Island Defence, Kiro,
Japan, August 1945. Reason for outer red ring is
unknown.



5
Ki.84a, Unidentified Unit, Home Island Defence, Kiro,
Japan, August 1945.

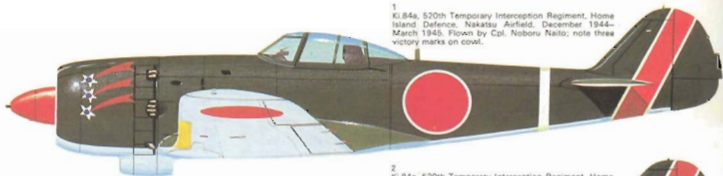


6
Ki.84a, 57th Special Attack Company, Air-to-Air
ramming of B-29's, and scheduled for Anti-Shipping
Attack in the event of Allied invasion of Japan.



1

Ki.84a, 520th Temporary Interception Regiment, Home Island Defence, Nakatsu Airfield, December 1944–March 1945. Flown by Cpl. Noboru Naito; note three victory marks on cowl.



2

Ki.84a, 520th Temporary Interception Regiment, Home Island Defence, Nakatsu Airfield, March–May 1945.



3

Ki.84a, 520th Temporary Interception Regiment, Home Island Defence, Nakatsu Airfield, March–May 1945.



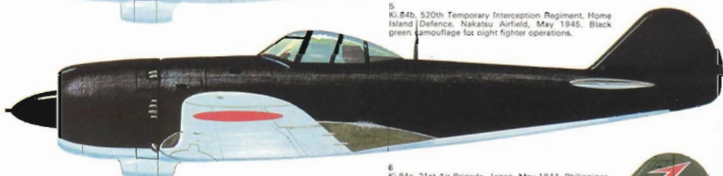
4

Ki.84a, 520th Temporary Interception Regiment, Home Island Defence, Nakatsu Airfield, March–May 1945.



5

Ki.84b, 520th Temporary Interception Regiment, Home Island Defence, Nakatsu Airfield, May 1945. Black green camouflage for night fighter operations.



6

Ki.84a, 21st Air Brigade, Japan, May 1944–Philippines, December 1944. Flown by Brigade Commander.

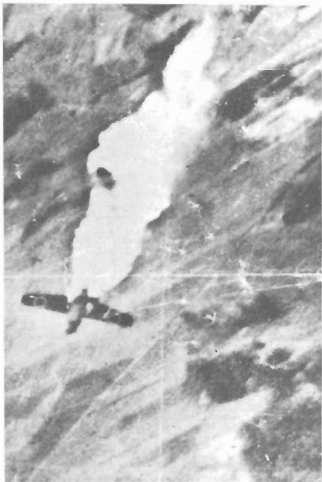




Above: Wreckage on the repair rack.

(Koku Fan via Bueschel)

Right: A "Frank" is downed by a USAAF Mustang over Tokyo. (USAAF via Bueschel)



Below: Smashed home defence Hayate with red wingtips at Kiru, Japan, August 1945.

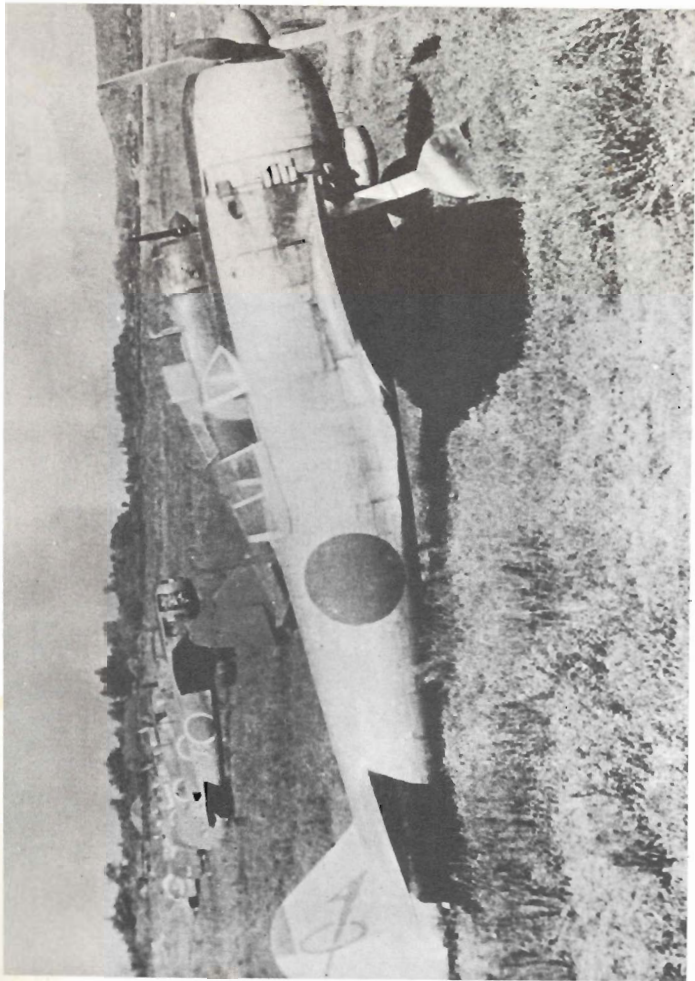
(Holmes G. Anderson via Bueschel)

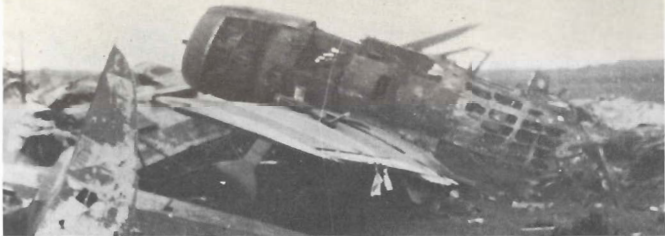




Tokyo air defence Hayate No. 46 with red tail marks of 2nd Company, 47th Fighter Regiment. (Copyright photograph from Robert C. Miles)

Industrial defence, with Hayate of the 1st Company, 104th Fighter Regiment at Anzan, Manchoukuo on its airfield after the successful Russian invasion in August 1945. Second aircraft is Tachikawa Ki.105 with Hayates in background. (Robert C. Mikesh via Bueschel)



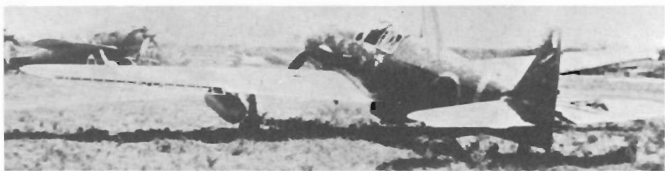


Above: Burned-out Ki-84-Ia Hayates at Kiru, Japan, at the end of the war. Red wingtips are home defence markings. (Holmes G. Anderson via Bueschel)



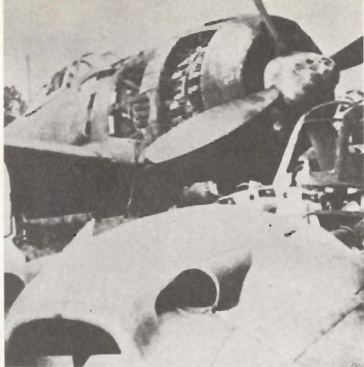
Above: Curious American inspects a Ki-84-Ia Type 4 "Frank" in a defeated Japan. (Koku Fan via Bueschel)

Below: Spoils of war! Type 3 Fighter Hien in foreground, Hayates at left rear. (Koku Fan via Bueschel)



Below: A repentant ground crew turns over its Hayate to the occupying Americans. (Koku Fan via Bueschel)



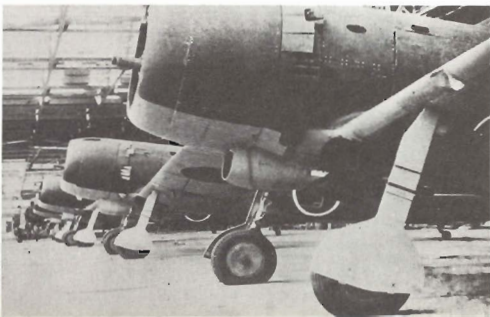


Above, right: Hayate wreckage littered the countryside. (Sekai no Kokuki via Bueschel)

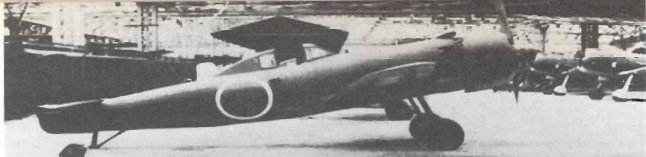
Above, left: Junk piles of Hayates were soon burned by the occupation forces.
(Sekai no Kokuki via Bueschel)



Right: Production at Nakajima's Ota Plant, Ki.115 Tsurugi at left. Hayates at right.
(Donald W. Thorpe via Bueschel)



Right: Late production Ki.84-II Hayate-Kai had wooden rear fuselage and wingtips.
(Koku Fan via Bueschel)

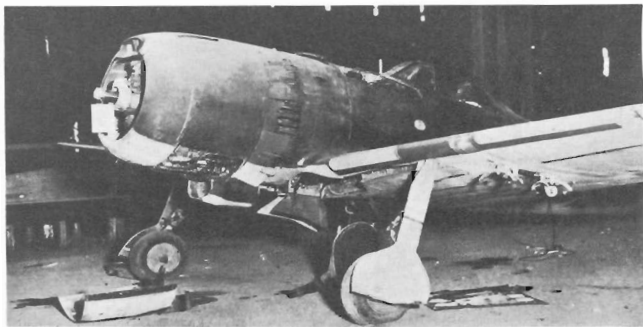


Above: Suicide Ki.115 has lines similar to combat Ki.84-II at right rear. (Koku Fan via Bueschel)



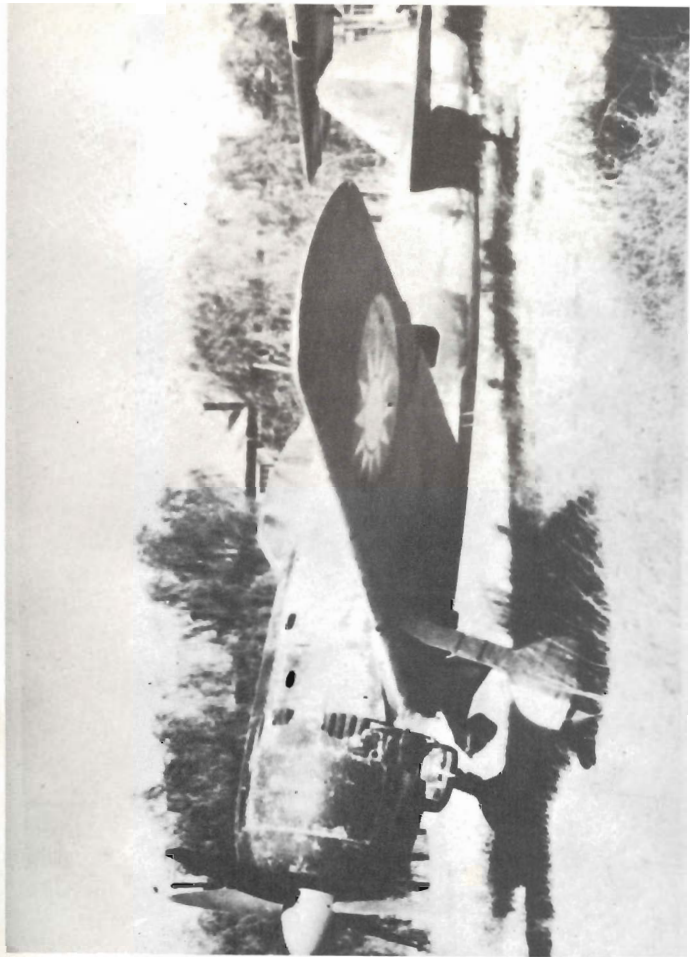
Above: On the plant floor, propellers have been removed to prevent use. (Koku Fan via Bueschel)

Below: De-fanged "Frank" missing propeller signifies the end of the operational Hayate. (Sekai no Kokuki via Bueschel)

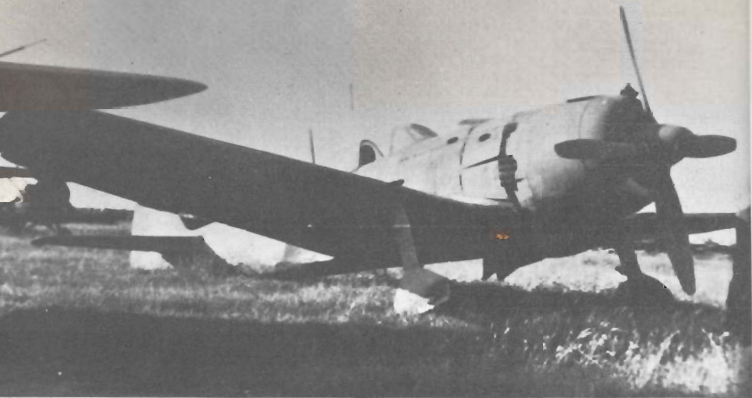


Below: "Frank", at right rear, is part of war booty in U.S. insignia. Mitsubishi Ki.109 cannon fighter is in foreground. (USAAF via Bueschel),



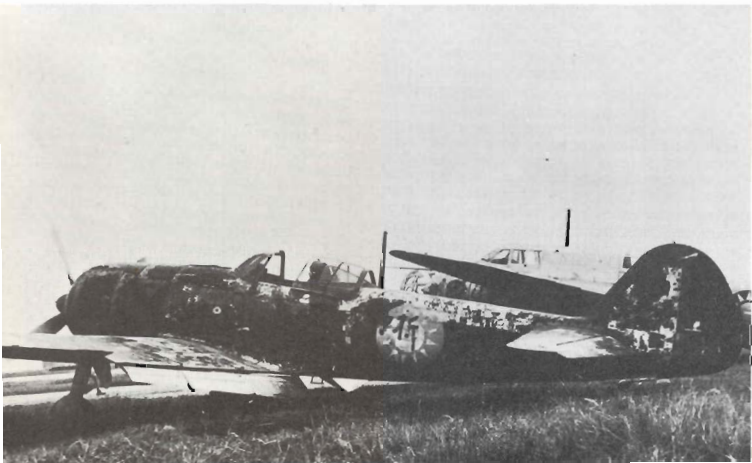


Above: Overpainted in Nationalist Chinese markings at Peking when the Pacific War ended, this late-model Hayate was re-captured by the Chinese Communists and entered service in the Red Army of China Air Force early in 1948. Its possible capture was the JAAF 104th Fighter Regiment stationed in Manchoukuo and North China at the time of the Soviet invasion in August 1945. (Peter M. Bowers via Burschel)



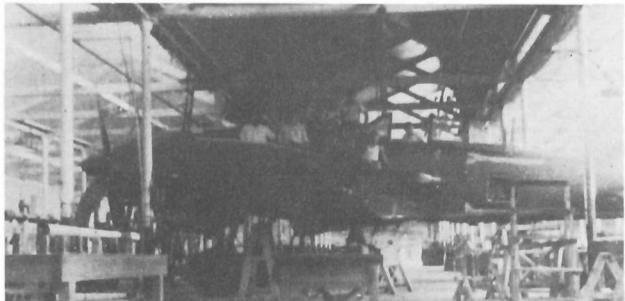
Abandoned in China, former Japanese Hayate fighters found themselves in Nationalist Chinese service. This Ki-84-1a is at Nanking in August 1946. (David W. Lucabaugh via Bueschel)

Left at Nanking, and impressed into Nationalist Chinese service, by summer 1946 this Ki-84-1b or 1c became a mechanical poster for patriotic statements which were painted over the Chinese insignia. (David W. Lucabaugh via Bueschel)



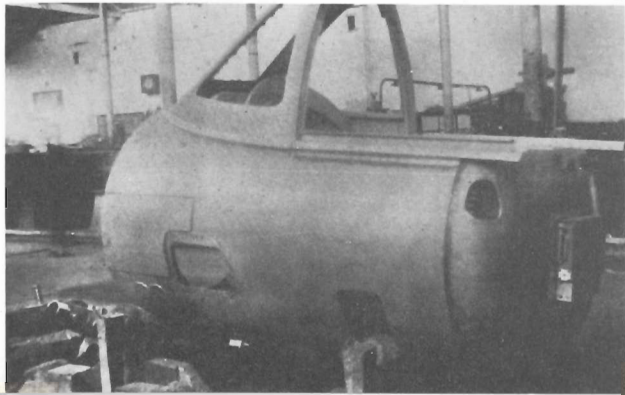


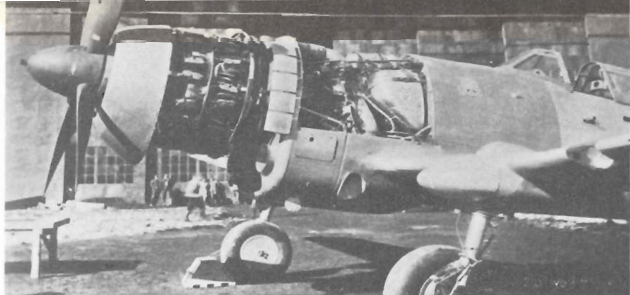
Above: Hayate lines can be seen in the Ki.94-II, with the aircraft redesignated as the Tachikawa Ki.104 for future development. (Sekai no Kokuki via Bueschel)



Above: Another project that owed much to the Hayate was the Tachikawa Ki.94-II, also powered by the Ha.219.ru in its Ha.44/12 model. One was completed, but never flown. (Hideya Ando via Bueschel)

Below: Pressurized cabin capsule from the Ki.94-II, a development that was never attempted with the Hayate. (Sekai no Kokuki via Bueschel)





Above: Power for the Ki.87 was the Mitsubishi Ha.44/21 (Ha.219 ru), a variant of which was also scheduled for the Ki.117 Hayate-kai interceptor. (Nakajima Hikoki via Bueschel)

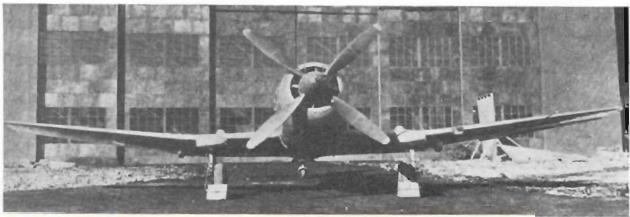
Below: Lines of the Ki.8701 prototype were similar to the Ki.84 Hayate. (Nakajima Hikoki via Bueschel)



Below: The Ki.87 had an exhaust supercharger mounted on its right side. (Nakajima Hikoki via Bueschel)



Below: Major difference from the Hayate design was the outboard landing gear of the Ki.87. (Nakajima Hikoki via Bueschel)





Above: The "Frank" was in the air in a matter of weeks. (USAAF via Bueschel)



Above: Maintenance problems with S17 revealed the mechanical weaknesses of the "Frank". (USAAF via Bueschel)



Above: S17 was flown against its competition in combat evaluation tests over the Philippines. (USAAF via Bueschel)

Below: Lack of a fire extinguisher in the Hayate led to quick installation in No. 302 for protection during tests. (USAAF via Bueschel)



Below: "302" was tested in 1946, but the project was soon dropped. (Peter M. Bowers via Bueschel)



AIR COMBAT REGIMENTS:		Area of Operations	Former A/C	Later A/C	Comments
Regiment	When used				
1st Fighter	Aug. 1944– July 1945	Philippines · Japan	Ki.27 Ki.43	None	Saw much combat. Sent to Philippines 22 Sept. 1944 to join 12th Air Brigade, 4th Air Army. Commander was "Ace" Major Saburo Togo (21 kills), with last commander Captain Hedonosaka Shishimoto. Disbanded in Japan at Shimodate in July 1945.
2nd Reconnaissance	Jan. 1945– 15 July 1945	Japan	Ki.15, Ki.36 Ki.27, Ki.43 Ki.46	None	Flew Ki.84 on high-speed photo reconnaissance. Unit officially disbanded on 15 July 1945.
11th Fighter	Sept. 1944– end of war	Philippines · Japan	Ki.27 Ki.43	None	Saw much combat. Sent to Philippines on 22 Sept. 1944. Virtually annihilated there. Unit stationed at Clark Field. Flew both Ki.43 and Ki.84 in Philippines. Disbanded at Takahagi, Saitama, Japan at war's end.
13th Fighter	Feb. 1945– end of war	Philippines · Syonan (Singapore) French Indo-China Thailand · Formosa	Ki.10, Ki.15 Ki.27, Ki.43 Ki.45	None	Unit used five aircraft types in Pacific War. Sent to Celebes in the Southern Philippines and moved north in Dec. 1944 as part of the 4th Air Army. Pulled out early in 1945 and moved south. Stationed in Indo-China and Thailand from Feb. 1945 until early August. Disbanded at Heli, South Formosa, at war's end.
20th Fighter	Feb. 1945– end of war	Philippines · Formosa Okinawa · Japan (Middle Defence Sector)	Ki.43	None	Sent to 4th Air Army, Philippines, in Nov. 1944. Returned to Formosa in Feb. 1945 to receive Ki.84. Thrown into Okinawa battle. Disbanded at Taichu, Formosa at war's end.
21st Fighter	May 1944– end of war	Japan · Philippines Formosa	Ki.27 Ki.43	Ki.45	Sent to Philippines in summer 1944. First unit to fly Ki.84 in the Philippines. Decimated there. Returned to Formosa early in 1945. Disbanded at Toen, Formosa at war's end.
22nd Fighter	5 March 1944– end of war	China · Philippines Japan (Eastern Defence Sector) Chosen (Korea)	Ki.44	None	Commanded by Major Iwashii. First combat unit to fly Ki.84. Hankow, China air defence. Unit one of four to receive Imperial award for distinguished combat performance. Shifted to 12th Air Brigade, 4th Air Army in Philippines on 22 Sept. 1944. Disbanded at Kimpo, Seoul, Chosen (South Korea) at war's end.
23rd Fighter	Spring 1945– end of war	Japan (Eastern Defence Sector)	Ki.43 Ki.44 Ki.61	None	Home Defence unit formed at Ota Airfield, Inba, Chiba on 11 Oct. 1944. Flew mixed bag of Ki.43, Ki.44, Ki.61 with a few Ki.84 later assigned. Both training and combat. Disbanded at Itoha, Chiba at end of war.
24th Fighter	March 1945– end of war	Japan · Okinawa Formosa	Ki.27 Ki.43	Ki.45	One of JAAF "Old Units" flying Ki.43 in Philippines. Pulled out early in 1945 and re-equipped with Ki.84 for Okinawa campaign. Saw much combat. Finally re-assigned to Formosa and disbanded there at Taio at end of war.
25th Fighter	March 1945– end of war	China · Chosen (Korea)	Ki.43	Ki.100	Chinese occupation force. Fought against Chinese Air Force, which later used its aircraft. Flew both Ki.84 and Ki.100 in closing months of war. Disbanded at Suigen, Chosen (Korea) at end of war.
29th Fighter	Nov. 1944– end of war	Philippines · Japan Formosa	Ki.44	None	Sent to Philippines, reaching 4th Air Army in Nov. 1944. Formerly 29th Independent Fighter Company. Disbanded at Taichu, Formosa at end of war.
50th Fighter	Nov. 1944– end of war	Burma · Thailand French Indo-China Formosa	Ki.27 Ki.43	None	Crack "Overseas" unit. Occupation force in Thailand and French Indo-China. Moved north to Formosa in spring 1945. Unit disbanded at Kagi, Formosa at end of war.
51st Fighter	June 1944– end of war	Japan · Philippines Japan (Home Island Defence)	Ki.43	None	Unit sent to Philippines on 22 Sept. 1944 to join 16th Air Brigade, 4th Air Army. Commander was Major Tadao Ikeda. Unit disbanded at Shimodate, Ibaraki, Japan at end of war.
52nd Fighter	June 1944– end of war	Japan · Philippines Okinawa · Japan (Eastern Defence Sector)	Ki.43	None	Unit sent to Philippines on 22 Sept. 1944 to join 16th Air Brigade, 4th Air Army. Commander was Major Ikida Takano. Unit disbanded at Chofu, Tokyo, Japan at end of war.
64th Fighter	Summer 1945– end of war	Thailand	Ki.10, Ki.27 Ki.43, P-40	None	Known as the "Kato Regiment", converting to Ki.84 in Thailand as the war ended. Disbanded at Kuracoul in SE Asia at end of war.

AIR COMBAT REGIMENTS:					
Regiment	When used	Area of Operations	Former A/C	Later A/C	Comments
70th Fighter	30 July 1944— end of war	Japan (Middle Defence Sector) Manchoukuo	Ki.27 Ki.44 Ki.45 Ki.45		Home Island Defence unit assigned to Tokyo air defence after Doolittle Raid in 1941. Primary fighter in 1944 to end of war was Ki.44 with Ki.84 added after unit training at Akeno in July 1944. Commander was Major Tokuyuki Sakato. Disbanded at Matsudo, Chiba, Japan at end of war.
71st Fighter	30 June 1944— end of war	Japan • Philippines Japan (Western Defence Sector)	Ki.43	None	Hastily formed Fighter Regiment for Philippines defence. Formerly light bomber unit reformed in Japan 30 June 1944. Flew Ki.43 and Ki.84 in Philippines. Disbanded at Hofu, Yamaguchi, Japan at end of war.
72nd Fighter	30 June 1944— 30 May 1945	Japan • Philippines	Ki.43	None	Hastily formed Fighter Regiment for Philippines defence. Formed in Japan 30 June 1944. Commander was Major Eisuke Tsusaka. Arrived in Philippines in Dec. 1944 and assigned to 4th Air Army. Unit annihilated. Officially disbanded for the records on 30 May 1945.
73rd Fighter	June 1944— 30 May 1945	Japan • Philippines	Ki.43	None	Established Ki.43 unit equipped with Ki.84 and sent to Philippines in Dec. 1944. Commander was Major Teruo Misumi. Unit virtually annihilated in Philippines. Officially disbanded for the records on 30 May 1945.
85th Fighter	Sept. 1944— end of war	China • Chosen Manchoukuo	Ki.27 Ki.44	None	China occupation force and Nanking, China, air defence. Shifted to Chosen (Korea) in spring 1945. Commander was Major Togo Saito. Unit disbanded at Seoul, Chosen (South Korea) at end of war.
101st Fighter	10 Nov. 1944— end of war	Okinawa • Japan (Home Island Defence)	Ki.43	None	Home Island Defence unit formed at Kameyama, Shimane, Japan on 10 Nov. 1944. Commander was Major Mitake Sakamoto. Flew Ki.43 and Ki.84. Disbanded at Takamatsu, Kagawa, Japan at end of war.
102nd Fighter	10 Nov. 1944— 30 July 1945	Okinawa • Japan (Home Island Defence)	Ki.43	None	Companion regiment to 101st formed at Kameyama, Shimane, Japan on 10 Nov. 1944. Unit officially disbanded 30 July 1945 due to losses with remnants transferred to 103rd Fighter Regiment.
103rd Fighter	Sept. 1944— end of war	Yura, Awaji Islands	Ki.43	None	Advance Island defence for Home Islands. Unit formed at Kameyama, Shimane, Japan on 25 Aug. 1944. Later expanded by remnants of 102nd Regiment. Disbanded at Yura ("Japanese Southern Islands") at end of war.
104th Fighter	30 Nov. 1944— end of war	Manchoukuo	Ki.43	None	Crack Ki.84 Regiment remaining in Manchoukuo. Formed at Heizan on 30 Nov. 1944. Commander was Major Yosuke Okazaki. Fought Soviets and Mongols in "7 Day War". Disbanded at Anzan, Manchoukuo at end of war.
111th Fighter	10 July 1945— end of war	Japan (Middle Defence Sector)	None	Ki.100	One of the last JAAF units to be formed. Flew both Ki.84 and Ki.100. Last unit to be formed at Akeno, going active on the same day Akeno was closed. Commander was Lieut. Colonel Tadashi Ishikawa. Unit disbanded at Komaki, Gifu, Japan at end of war.
112th Fighter	10 July 1945— end of war	Japan (Middle Defence Sector)	Ki.43	Ki.100	One of the last JAAF Regiments to be formed. Unit formed at Komaki, Gifu, Japan on 10 July 1945 flying mixed bag of Ki.43, Ki.84, Ki.100. Commander was Lieut. Colonel Hedemi. Disbanded after the war at Gifu.
200th Fighter	12 Oct. 1944— 30 May 1945	Philippines • Japan (Home Island Defence)	None	Ki.100	Unit formed at Akeno, Mie, Japan on 12 Oct. 1944 with Ki.84 as original equipment. Sent to 4th Air Army in Philippines. Decimated there. Officially disbanded for the records on 30 May 1945.
246th Fighter	Autumn 1944— end of war	Philippines • Japan (Middle Defence Sector)	Ki.27 Ki.43	None	Established Home Defence Unit shifted to Philippines 4th Air Army in Nov. 1944. Commander was Major Ishikawa. Disbanded at Taisho, Osaka, Japan at end of war.
520th Temporary Interception	Dec. 1944— March 1945	Japan (Home Island Defence)	None	None	Hastily formed air defence regiment with pilots and aircraft re-assigned to other units. Based at Nakatsu Airfield between Dec. 1944 and March 1945. One of few units to operate Ki.84-II.

INDEPENDENT COMPANIES:					
Company	When used	Area of Operations	Former A/C	Later A/C	Comments
24th Fighter	Jan. 1945– 30 May 1945	Philippines - Sumatra Formosa	Ki.43	None	One of the few Ki.84 overseas units other than China and Philippines. Unit arrived in Philippines Oct. 1944. Transferred to Sumatra and Formosa in early 1945. Decimated in Special Attack and disbanded for the records on 30 May 1945.
Experimental Service Evaluation	Oct. 1943– March 1944	Japan	None	None	Service evaluation of pre-production Ki.84 under operational conditions. Unit disbanded in March 1944 with personnel and aircraft transferring to 22nd Regiment.
FLIGHT DRILLING COMPANIES:					
Company	When used	Area of Operations	Former A/C	Later A/C	Comments
1st	22 July 1944– end of war	Japan	Ki.43	None	Unit formed 22 July 1944 with Ki.43 as original equipment, augmented by Ki.84. Disbanded at end of war.
8th	31 May 1944– end of war	Japan	None	None	First Flight Drilling Company to fly Ki.84. Unit formed 31 May 1944 and disbanded at end of war.
10th	30 Nov. 1944– end of war	Japan	None	None	Last Flight Drilling Company to be formed. Doubled in Home Defence duties. Formed 30 Nov. 1944 and disbanded at end of war.
13th	15 Sept. 1944– end of war	Japan	Ki.43	None	Flew both Ki.43 and Ki.84 when formed 15 Sept. 1944. Disbanded at end of war.
14th	Oct. 1944– 31 Dec. 1944	Japan	Ki.43	None	Short-lived unit formed in Oct. 1944 and disbanded two months later.
TRAINING SCHOOLS:					
School	When used	Area of Operations	Former A/C	Later A/C	Comments
Akino Army Flying School	Feb. 1944– 10 June 1944	Akino, Japan	Ki.10, Ki.27 Ki.43, Ki.44 Ki.61	Ki.45	First school to conduct Ki.84 flight training. Trained 22nd Regiment in Feb. and March 1944 to be first Ki.84 combat unit.
Akino Air Training Division	20 June 1944– 10 July 1945	Akino, Japan	Ki.43, Ki.44 Ki.45, Ki.61	Ki.100	Reformed advanced fighter training school at Akino. Formed 11th Regiment in July 1945 with unit going active on 10 July. School terminated activity on same day.
Hokota Air Training Division	20 June 1944– 10 July 1945	Hokota, Japan	Ki.48, Ki.51 Ki.54	Ki.45	Former Light Bomber training school pressed into fighter training for defence of Home Islands.
Tokorozawa Army Aviation Maintenance School	Summer 1944– end of war	Tokorozawa	All current JAAF aircraft	All current JAAF aircraft	Supplied to Army Aviation Maintenance Schools for Ki.84 maintenance and repair training.
Tachikawa Instructing Division	Autumn 1944– end of war	Tachikawa	All current JAAF aircraft	All current JAAF aircraft	Maintenance and repair training for Philippines and Home Island Defence units.
TAIATARI (Special Attack) REGIMENTS:					
Regiment	When used	Area of Operations	Former A/C	Later A/C	Comments
57th Special Attack	Summer 1945– end of war	Japan (Home Island Defence)	None	None	One of the few air-to-air B-29 Taiatari (Body Crashing) suicide ramming units. Missions were to ram and destroy B-29 bombers and avoid combat. Tokyo air defence.
FOREIGN SERVICE:					
Unit and Country	When used	Area of Operations	Comments		
Republic of China (Nationalist China)	1945–1946	China	Examples picked up from the Japanese after the Pacific War. Some flown by Nationalists during Chinese Civil War, 1946–1949. Prime purpose was to hold in reserve in event American aid was cut and fighters were needed.		
Red Army of China (Communist China)	Oct. 1945– July 1946	Manchuria - North China Central China	Former Ki.84 aircraft acquired in Manchuria (Manchoukouo) and North China by the Chinese Red Army (Communist China). Actively flown by Red Army Air Force by Japanese pilots and mentioned in Nationalist Chinese field reports.		
People's Liberation Army Air Force (Communist China)	July 1946– 1949	Central China Manchuria	People's Liberation Army Air Force (PLAAF) formed in July 1946. Sporadically used in Chinese Civil War along with Ki.43, Ki.44, Ki.61, 1946–1949. Remained in service until replaced by Soviet fighters in 1950.		

Note: These lists are not to be regarded as complete as only those units for which Ki.84 use has been confirmed have been identified.



Green dapple on
Natural Metal



Dark brown
spinners



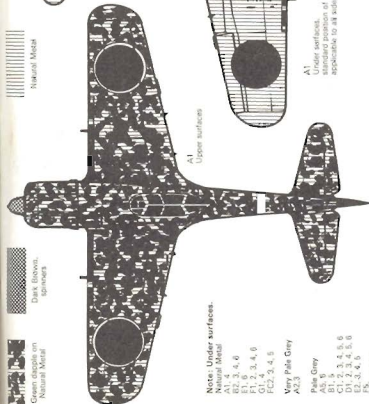
Natural Metal



Indigo
anti-gloss panel



Dark Red Brown



A1
Upper surfaces

Note: Under surfaces.

Natural Metal

A2 3

B2 3, 4, 6

E1 6

G1 2, 3, 4, 6

G2 3, 4, 5

Very Pale Grey

A2 3

Pale Grey

A1 3

B1 3

C1 2, 3, 4, 5, 6

E2 3, 4, 5, 6

F6

G2 3, 5, 6

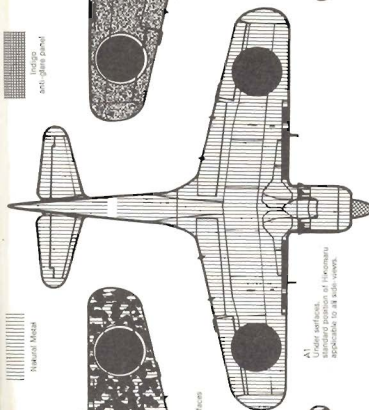
H1 3

F1

F1

F1

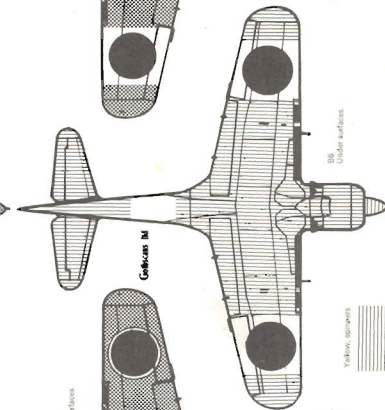
H1 2, 3, 4, 5



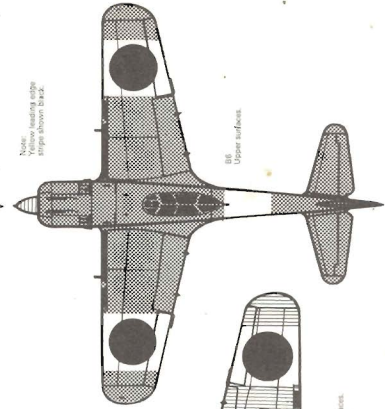
A1
Under surfaces.
Indigo anti-gloss panel
applicable to all side views.



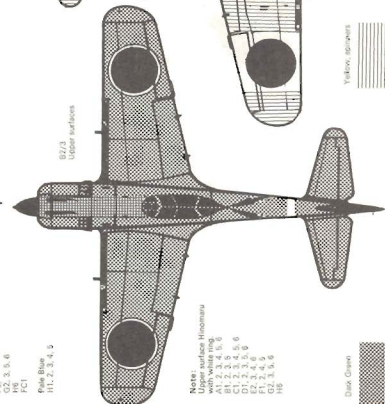
A8
Upper surfaces.
standard pattern of Hinomaru
applicable to all side views.
Note: Hinomaru shown black.



B2/3
Upper surfaces



B6
Upper surfaces.
Note:
Yellow leading edge
strip shown black.



B6
Under surfaces

Note:

Upper surface Hinomaru

with white ring

A1 2, 3, 4, 5, 6

B1 2, 3, 5, 6

C1 2, 3, 4, 5, 6

E2 3, 4, 5, 6

F1 2, 4, 5

G2 3, 5, 6

H6

Yellow spinners

Dark Green

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- 25 Nakajima Ki.44-Ia/IIb Shoki
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- 28 De Havilland Mosquito
- 29 Nakajima Ki.84 Hayate
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Front cover, top to bottom:

Ki.84b, 64th Air Combat Regiment, 1st Company, Thailand at end of war. 2nd Company red.

Ki.84a, 72nd Air Combat Regiment, 3rd Company, Philippines late 1944-early 1945.

Ki.84a, 29th Air Combat Regiment, Headquarters Company, Taichu, Formosa, summer 1945.

Ki.84a Chinese Nationalist Air Force, Nanking, China, August 1946.

Ki.84a Red Army of China Air Force, subsequently People's Liberation Army Air Force. Hayate fighters flown by Japanese pilots were operated by the Communist Chinese in the spring of 1946.